Proposal # 2001- C-207 (Office Use Only)

PSP Cover Sheet

Proposal Title: Spawning Habitat and Floodplain Restoration in the Stanislaus River, Phase 1

Applicants Name: Carl Mesick Consultants and the Trust for Public Land
Subcontractors: McBain and Trush, Hawkins & Associates Engineers, MBK Engineers, S. P. Cramer & Associates, KDH Biological Resource Consultation, and EnviroRisk, Inc.
Contact Name: Carl Mesick
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Amount of Funding requested: $2,487,225
Some entities charge different costs dependent on the source of the funds. If it is different for state or federal funds list below.
State cost _____ Federal cost _____

Cost share partners? X **Yes** ____ **No**
Identify partners and amount contributed by each: $200,000 from the Central Valley Project Improvement Act's (CVPIA) Section 3406(b)(13) toward restoration planning and monitoring, $50,000 from the CVPIA Anadromous Fish Restoration Program for and appraisal and restoration planning at Two-Mile Bar, and $100,000 requested from the National Fish and Wildlife Foundation for acquisition and restoration planning. Carl Mesick Consultants and The Trust for Public Land will donate labor and materials for project management, a total value of about $82,030, and the U.S. Army Corps of Engineers will donate about 9,292 cubic yards of gravel from dredger tailings and perched gravel bars from their fee property, a value of about $14,496.

Indicate the Topic for which you are applying (check only one box).

- ☐ Natural Flow Regimes
- ☐ Nonnative Invasive Species
- ☒ Channel Dynamics/Sediment Transport
- ☐ Flood Management
- ☐ Shallow Water Tidal/Marsh Habitat
- ☐ Contaminants
- ☐ Beyond the Riparian Corridor
- ☐ Local Watershed Stewardship
- ☐ Environmental Education
- ☐ Special Status Species Surveys and Studies
- ☐ Fishery Monitoring, Assessment and Research
- ☐ Fish Screens

What county or counties is the project located in? Stanislaus, Tuolumne, and Calaveras counties.

What CALFED ecozone is the project located in? See attached list and indicate number. Be as specific as possible 13.1 Stanislaus River

Indicate the type of applicant (check only one box):

- ☐ State agency
- ☐ Public/Non-profit joint venture
- ☐ Local government/district
- ☐ University
- ☒ Other: Private party/Non-profit joint venture
- ☐ Federal agency
- ☐ Non-profit
- ☐ Tribes
- ☐ Private party

Indicate the primary species which the proposal addresses (check all that apply):

- ☒ San Joaquin and East-side Delta tributaries fall-run chinook salmon
- ☐ Winter-run chinook salmon
- ☐ Spring-run chinook salmon
- ☐ Late-fall run chinook salmon
- ☒ Fall-run chinook salmon
- ☐ Delta smelt
- ☐ Longfin smelt
- ☐ Splittail
- ☒ Steelhead trout
- ☐ Green sturgeon
- ☐ Striped bass
- ☐ While sturgeon
- ☐ All chinook species
- ☐ Waterfowl and Shorebirds
- ☐ All anadromous salmonids
- ☐ Migratory birds
- ☐ American shad
- ☐ Other listed T/E species:

Indicate the type of project (check only one box):

- ☐ Research/Monitoring
- ☐ Watershed Planning
- ☒ Pilot/Demo Project
- ☐ Education
- ☐ Full-scale Implementation

Is this a next-phase of an ongoing project? Yes ___ No _X_
Have you received funding from CALFED before? Yes _X_ No ____

If yes, list project title and CALFED number: Knights Ferry Gravel Replenishment #97-N21

Have you received funding from CVPIA before? Yes ___ No _X_

If yes, list CVPIA program providing funding, project title and CVPIA number (if applicable):

By signing below, the applicant declares the following:

- The truthfulness of all representations in their proposal;
- The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant to the extent as provided in the Section.

Carl Mesick
Printed name of applicant

Signature of applicant

B. Executive Summary.

Title of Project: Spawning Habitat and Floodplain Restoration in the Stanislaus River, Phase 1. Amount Requested: $2,487,225

Carl Mesick Consultants and The Trust for Public Land are the primary applicants. McBain and Trush, S.P. Cramer & Associates, Hawkins and Associates Engineers, MBK Engineers, KDH Biological Resource Consultation, and EnviroRisk, Inc. would be subcontractors to Carl Mesick Consultants. The primary contact is Carl Mesick, Carl Mesick Consultants, 7981 Crystal Boulevard, El Dorado, California 95623, phone/fax (530) 620-3631, Email: cmcfish@innercite.com

This is Phase 1 of a spawning and floodplain restoration project at five reaches on the lower Stanislaus River, a tributary to the San Joaquin River. Two key impacts that this project will begin reversing are: (1) impacts of upstream dams that have nearly eliminated the coarse sediment supply, and (2) impacts of gravel and gold mining and riparian encroachment on channel morphology and floodplain connectivity. Due to these impacts, spawning habitat in the Stanislaus River is adequate to support only 2,000 spawning fall-run chinook salmon (*Oncorhynchus tshawytscha*) and there is very little floodplain habitat to provide juvenile salmonids with rearing habitat during high flows. Our objectives are to increase coarse sediment storage and supply and restore floodplain function and habitat in the Stanislaus River by applying a newly emerging approach that has been successfully used on Clear Creek below Whiskeytown dam to address both problems. By removing gravel on heavily disturbed bars in a way that restores floodplain habitat, and inserting that gravel back into the river to increase gravel storage and supply, two sites are restored for the price of one.

This project targets five reaches to apply this approach: Two-Mile Bar (RM 57), Knights Ferry (RM 54), Six-Mile Bar (RM 53.5), Lover's Leap (RM 52.5), and Honolulu Bar (RM 49.5). We are proposing to appraise and acquire the 50-acre Two-Mile Bar site. The other reaches, which are owned by the U.S. Army Corps of Engineers and cooperative landowners, also have restoration potential. The Two-Mile Bar, Knights Ferry, Lover's Leap, and Honolulu Bar reaches have large gravel bars that are perched far above the river so that they rarely provide floodplain habitat. Six-Mile Bar has substantial gravel tailings adjacent to a section of river that was extensively dredged. Phase 1 will continue the permitting, design, implementation, and monitoring at Two-Mile Bar and it will also begin the implementation process at the remaining four reaches by completing conceptual plans, permitting, and designs, as well as initiate pilot projects. About 27,083 cubic yards of gravel will be removed from the floodplains and added to 24 sites within the five project reaches. Other Phase 1 tasks include: (1) the repair of several gullies and roads that deliver fine sediment to the river during rainfall events; (2) the construction of two gravel roads on ACOE fee property to provide access for restoration and monitoring; and (3) an expansion of an on-going research program evaluating sediment transport, floodplain habitat, salmonid spawner use, juvenile salmonid use, and invertebrate production at gravel addition sites between Two-Mile-Bar and Oakdale. Phase 2, to be submitted at a later date, will request funding to fully implement the floodplain restoration and extend monitoring.

Phase 1 has been designed to test several hypotheses related to the restoration of spawning habitat. First, it will test the hypothesis that steelhead/rainbow trout (*O. mykiss*) utilize sites where small gravel is added compared to the large gravel typically added for salmon. The distribution and habitat utilization of trout will also be assessed. Fluvial geomorphic assessments would be made to test the hypothesis that adding gravel will increase the frequency of bed mobility, and reducing artificially high floodway confinement will reduce the magnitude of gravel transport, such that gravel is mobilized more frequently, but the rate of transport will be moderated by functional floodplains. Other studies will test the hypotheses that newly created riffle habitat increases the utilization by juvenile salmonids and aquatic invertebrate production. Current CALFED monitoring at the 25 Knights Ferry Gravel Replenishment sites would be continued for a fourth and fifth year to test the effects of gravel size and source on spawner use.

This project will help achieve several CALFED ERP goals and CVPIA priorities. Both the CALFED ERP and the CVPIA place a high priority on projects that help restore at-risk species that include fall-run chinook salmon and steelhead trout. This project will also help achieve other CALFED goals such as the rehabilitation of natural ecosystem processes to support natural aquatic and associated terrestrial biotic communities; the enhancement of populations of selected species for sustainable commercial and recreational harvest; and to protect functional habitat types throughout the watershed for public values.

C. Project Description

We are requesting funds for Phase 1 of a demonstration project to restore spawning and rearing habitat on five reaches on the Stanislaus River below Goodwin Dam. The Stanislaus River meanders approximately 58.5 miles between Goodwin Dam and the mouth and it is a tributary to the San Joaquin River (Figures 1-3). Most of the fall-run chinook salmon spawn in the uppermost 12-mile reach, which ends at the Orange Blossom Bridge (DWR 1994, CMC et al. 1996). Rainbow trout and presumably steelhead also utilize this reach, but no surveys have been conducted to determine their distribution or abundance. Phase 1 encompasses acquisition and restoration activities to improve habitat conditions in this important upper 12-mile spawning reach, and specifically includes the following:

Two-Mile Bar - Complete appraisal and fee-title purchase of a gravel bar, which is approximately 50 acres, develop final grading plans to restore floodplain function, complete environmental permitting and regulatory compliance, remove and process up to 10,000 yd^3 of spawning gravel from bar, add up to 6,550 yd^3 of the processed gravel into the Stanislaus River adjacent to the bar, regrade the gravel bars to improve floodplain function, and monitor geomorphic and biological effectiveness of efforts.
Knights Ferry – Develop plans to restore floodplain function, complete environmental permitting and regulatory compliance, repair and revegetate gullies that contribute fine sediment to the river, remove and process up to 2,395 yd^3 of spawning gravel from the gravel bar on ACOE fee title property, purchase 938 yd^3 of gravel processed from dredger tailings from a private landowner, add the processed gravel to the Stanislaus River adjacent to the bar, regrade the gravel bar to improve floodplain function, and monitor geomorphic and biological effectiveness of efforts.
Six-Mile Bar – Develop grading plans to construct a gravel road through ACOE fee property and to remove dredger tailings from private property pastures and ACOE fee property, complete environmental permitting and regulatory compliance, repair and revegetate gullies that contribute fine sediment to the river, remove and process up to 5,625 yd^3 of spawning gravel from dredger tailings on ACOE fee property, remove, process and purchase up to 3,750 yd^3 of spawning gravel from dredger tailings on private property, add processed spawning gravel into the Stanislaus River adjacent to the bar, grade the gravel tailing areas on private property to provide irrigated pasture, construct a gated, gravel road to provide river access at Six-Mile Bar and Lover's Leap, and monitor geomorphic and biological effectiveness of efforts.
Lover's Leap – Complete environmental permitting and regulatory compliance, purchase and process up to 6,554 yd^3 of spawning gravel from the landowner, add the processed gravel to the Stanislaus River adjacent to the site, and monitor geomorphic and biological effectiveness of efforts.
Honolulu Bar – Develop grading plans for a gravel road and removal of dredger tailings from floodplain habitat on ACOE fee property, complete environmental permitting and regulatory compliance, remove and process up to 1,271 yd^3 of spawning gravel, add the processed gravel to the Stanislaus River adjacent to the site, construct the gravel road, and monitor geomorphic and biological effectiveness of efforts.

Phase 2 (funding to be requested in the future) would continue implementation begun in Phase 1, ultimately completing floodplain habitat restoration at the Two-Mile-Bar, Knights Ferry, and Honolulu Bar project reaches as specified in the Phase I plans and expand the monitoring program to include the floodplain habitat.

1. Statement of the Problem

Most Central Valley river ecosystems have been severely degraded over time due to the decrease in flows and sediment transport, as well as land-use practices. The origins of degradation of river ecosystems can be traced back to the 1848 California gold rush, and includes the construction of numerous dams and extensive occupation of the historic floodway. The two main problems that have contributed to the degradation of habitat in the Stanislaus River are the cumulative loss of coarse sediment supply and storage downstream of Goodwin Dam, and cumulative reduction in riparian floodplain habitat between Goodwin Dam and the San Joaquin River. These factors result in insufficient spawning and rearing habitat, including inadequate gravel storage and floodplain habitat, which limit the reproduction, growth, and survival of chinook salmon and steelhead/rainbow trout populations in the Stanislaus River. These issues are described in more detail below.

a. Problem

Spawning Habitat: The amount of spawning habitat in the Stanislaus River has decreased greatly from unimpaired conditions due to upstream dams blocking coarse sediment supply from the upstream watershed,

direct removal from the river by instream gravel mining, riparian fossilization after large upstream dams eliminated scouring floods, and gradual armoring during moderate flows capable of transporting coarse sediment. Remaining spawning riffles in the Stanislaus River have also degraded by the loss of upstream gravel recruitment by upstream dams and in-river gravel mining (Mesick 2000a). For example, below Goodwin Dam, a four-mile-long canyon has only three natural riffles, which have become armored due to the confined nature of the canyon and the lack of gravel recruitment. Downstream of the Knights Ferry Bridge, many spawning riffles were completely excavated by in-river gravel mining between 1930 and the 1970s. Surveys conducted by the Department of Fish and Game in the 1960s (DFG 1972) suggest that about 55% of the channel between the Knights Ferry Bridge and the Orange Blossom Bridge has been mined. Furthermore, a comparison between the 1960s surveys and surveys in 1995 and 1996 (Mesick 200b) suggest that few riffles that were left in the reaches dredged in the 1960s have since become armored and shortened.

High levels of fine sediment intrusion, which occurs during intensive rainstorms, also negatively impacts the spawning habitat in the Stanislaus River. The impacts are particularly adverse downstream of Honolulu Park (RM 50), which is below the project areas (Carl Mesick Consultants 2000). Sedimentation occurs in the project reaches from past hydraulic mining and agricultural activities, although at much lower levels than occurs downstream of Honolulu Park. The sources of the fine sediments are probably widespread throughout the watershed, but some are in the project areas. One source is from active gullies in cut-slopes, dredger tailings, and abandoned dirt roads from past gravel mining near Knights Ferry and Six-Mile-Bar.

The loss of gravel from riffles is typically accelerated by dikes built to allow gravel mining in the floodplain and by berms that formed by the encroachment of riparian vegetation (McBain and Trush, 2000). In the Knights Ferry Reach, riparian encroachment has caused gravel to deposit as small berms at the upstream entrances of the floodplains. The isolation of the floodplain is worse in the downstream areas where dikes were built for gravel mining. By confining high flows to the main channel, these dikes and berms increase shear stress during large post-dam floods (5 to 10 yr recurrence interval) that accelerate the rate of bed movement and channel incision.

Fish Rearing Habitat and Riparian Vegetation: Past gravel mining activities and channel incision between Goodwin Dam and Riverbank (RM 34) have resulted in very few areas where the floodplain is inundated during typical springtime flows that would otherwise provide abundant food and refuge for juvenile chinook salmon and trout. Currently substantial floodplain habitat occurs in secondary channels in the 0.4-mile long reach immediately downstream of Willms Pond (RM 52) and the one-mile long reach near Honolulu Bar (RM 50), which are inundated on a seasonal basis. These areas were not mined for gravel. In the remaining areas, there is either no floodplain, or only short, narrow strips of floodplain habitat that are inundated by typical springtime high flows of 1,500 to 2,000 cfs. The direct removal of seasonally inundated floodplain habitat from mining activities, combined with flows no longer inundating remaining floodplains, reduces food availability and habitat for rearing juveniles during the high flow periods (DWR 1999). In addition, natural recruitment of cottonwoods and other riparian species on floodplains has been virtually eliminated.

b. Conceptual Model

Historically, escapement of fall-run chinook salmon to the Stanislaus River averaged about 15,000 adult fish each year from 1947 to 1954, but then declined rapidly to an average of about 4,700 adults from 1955 to 1989, and declined further to an average of 737 from 1990 to 1998 (Mesick 2000a). While it is likely that water development and export from the Delta contributed to this decline, substantial in-river gravel mining between the 1940s and the 1970s probably was another contributing factor (Mesick 2000a). The stock-recruitment relationship for the Stanislaus River salmon population from 1960 to 1993 is similar to a typical Beverton-Holt relationship in which recruitment initially increases as stock increases but then remains constant after stock exceeds about 2,000 three-year-old fish (Mesick 2000a). This suggests that the habitat in the Stanislaus River can support the progeny of only 1,000 adult female salmon.

Table 3 presents a broad conceptual model of how ecosystem processes affect habitat quality and existing conditions, and how the proposed restoration actions will affect the fish and their habitat in the Stanislaus River. Specific studies in the Stanislaus River indicate that in-river gravel mining has left very few suitable riffles for salmonid spawning habitat (Mesick 2000a, 2000b). The streambed at most riffles between Goodwin Dam and the Orange Blossom Bridge is either armored or compacted with low intragravel permeabilities. Gravel permeabilities in undisturbed gravels at 24 natural riffles averaged 2,245 cm/hr (range < 80 to 12,300 cm/hr) in August 1999, which equates to an average egg survival probability of about

20% (Mesick 2000a). Adult chinook salmon improve gravel permeabilities to about 80,000 cm/hour (80% survival rates) during spawning by constructing "dunes" which are two-foot high tailspills that increase the downwelling of surface flow to the incubating eggs below (Milhous, 1982). Many redds are constructed side-by-side so that the dunes sometimes span the width of the river. However, there is only sufficient gravel to construct these dunes every 20 to 30 feet longitudinally along the riffles and late-arriving females usually build their redds on top of these dunes. During fall 1999, when the salmon run in was relatively high (3,000 to 5,000 adults) in the Stanislaus River, there was a high rate of redd superimposition with as many as four redds at the same site. While the superimposing female may kill eggs in the original redds by digging up the egg pockets, mortality also occurs as the original eggs are smothered with silt as new redds are constructed.

The ability to restore spawning habitat for fall-run chinook salmon in the Stanislaus River was demonstrated by Carl Mesick Consultants Knights Ferry Gravel Replenishment Project (KFGRP) which added 8,500 cubic yards of gravel to 18 riffles in the Stanislaus River in summer 1999 and by the Department of Fish and Game (DFG) which added about 2,000 tons of gravel in 1996 and 1997 in Goodwin Canyon. For the KFGRP, river gravel that was obtained adjacent to the Stanislaus River, washed with either a 1/4 inch or 3/8 inch screen and a five-inch grizzly to produce a D_{50} of 35 mm, and placed in sites that had been almost completely dredged of all usable gravel, were utilized by spawning salmon (Figures 4 and 5). Spawner use was also substantially increased at armored riffles by adding about a one-foot deep layer of the Stanislaus River rock over the streambed (Figures 6 and 7). The KFGRP also showed that chinook salmon prefer to spawn in gravel obtained locally compared to rock imported from the Tuolumne River (Carl Mesick Consultants 2000). This partially explains why previous projects on the Stanislaus River, which imported rock from the Merced River, were poorly used by spawners (Mesick 2000b).

One unresolved issue regarding the restoration of spawning habitat is whether adult trout will utilize the relatively large gravel placed at the KFGRP and DFG restoration sites. A survey in February 2000 indicated that trout were not spawning in the newly added sites, but instead were spawning in natural riffles, which had smaller gravel. Large adult trout, which average about 450 mm in the Stanislaus River, could utilize the gravel placed at the KFGRP sites, but typically prefer spawning gravel with a D_{50} of about 20 mm (Kondolf 2000). Although small gravel suitable for adult trout would be suitable for adult salmon as well, there is concern that small gravel would be rapidly mobilized by high flows and that gravel permeability would decline quickly compared to sites where large gravel is added.

The effects of the highly controlled flow regime on the Stanislaus River on sediment transport and vegetation encroachment are complex and their affects on the useful life of restored spawning habitat in the Stanislaus River are unknown. Restoration of floodplain habitat, removal of encroached vegetation, and reducing fine sediment loading, may help to restore some of the ecosystem processes that naturally maintain suitable spawning habitat conditions. This project will evaluate sediment transport and encroachment issues in the five project reaches, which vary in channel and floodplain configurations.

The effective life of the project riffles as affected by fine sediment intrusion is another issue for the Stanislaus River. Egg survival and fry emergence were estimated to be high immediately after the gravel was added to the KFGRP sites based on intragravel permeabilities and dissolved oxygen levels observed in fall 1999. When the gravel was first added to the streambed in fall 1999, gravel permeabilities were typically 104,000 cm/hr and dissolved oxygen levels were at least 95% of saturation, which corresponds to an egg survival probability of about 85% (Chapman 1988). After intensive rainstorms in winter 2000, permeabilities decreased to 33,000 cm/hr at many of the restoration sites and egg survival would be expected to have declined to about 71%. Although permeabilities would be expected to continue to decline, those at a 1994 DFG restoration site (Riffle R27) ranged between 4,500 and 6,000 cm/hr (egg survival of 45%), which was about twice the average for nearby unrestored sites. This project and the KFGRP monitoring program will evaluate the fine sediment intrusion rates at various riffles between Goodwin Dam and Oakdale.

Another issue is whether the degraded spawning habitat is limiting recruitment to the salmon population in the Stanislaus River. Screw trapping surveys by S. P. Cramer & Associates suggest that the number of fry produced was substantially greater in spring 2000 after the KFGRP added 13,000 tons of clean gravel than during the previous surveys between 1994 to 1999. However, because the number of spawners was high in fall 1999 and trapping conditions were good in spring 2000, additional surveys are needed to verify that gravel augmentation is increasing fry production. In addition, increased fry production may not increase population recruitment if rearing habitat for juveniles is also limiting.

Another probable cause for the decline in escapement to the Stanislaus River since the 1950s is that the growth and survival of the juvenile salmonids was reduced when the food-rich floodplains were isolated from the river and invertebrate producing gravels were excavated from the streambed. The streambed in the Stanislaus River is highly compacted and the abundance of aquatic invertebrates, particularly Ephemeroptera, Plecoptera, and Trichoptera, is usually low in embedded substrates that lack interstitial spaces (Waters 1995). The density of juvenile trout was high at the KFGRP riffles soon after construction, presumably due to food availability and the hydraulic conditions created at the riffles. In addition, studies by DWR (1999) indicate that the growth and survival rates of juvenile chinook salmon are higher for fish migrating through the Yolo Bypass than for fish that migrate in the mainstem Sacramento River.

c. Hypotheses being tested

This project has been developed based on data showing that gravel supply and spawning habitat are limiting salmon production when escapement exceeded 2,000 spawners. In addition, the lack of gravel supply and floodplains impair important fluvial processes. Therefore, Phase 1 has been designed to test several hypotheses related to the restoration of spawning habitat. First, it will test the hypothesis that steelhead/rainbow trout utilize sites where smaller gravel is added. Fluvial geomorphic assessments will be conducted to test the hypothesis that adding gravel will increase the frequency of bed mobility, and that reducing artificially high floodway confinement from dredger tailings will reduce the magnitude of gravel transport, such that gravel is mobilized more frequently, but the rate of transport will be moderated by functional floodplains. We expect that this effort will greatly increase coarse sediment storage in the Stanislaus River, thereby increasing potential spawning habitat to support much more than the present limitation of approximately 2,000 spawners. In addition, restoring floodplain habitat will increase coarse sediment storage longevity and riparian terrestrial habitat. These and additional hypotheses to be tested and the necessary data to test them are presented in Table 1.

d. Adaptive Management

This project was developed with an experimental design so that the information generated will be useful in other efforts to manage and recover fall-run chinook salmon and steelhead/rainbow trout in the Stanislaus River, in particular, and in other Central Valley rivers in general. Although it appears obvious that the lack of floodplain and spawning habitats caused by in-river gravel mining, dike construction, and encroached vegetation due to controlled flows are limiting factors for chinook salmon and trout in the Stanislaus River, the expense of restoring these habitats suggests that the anticipated benefits should be justified through intensive monitoring of a demonstration project as is proposed here. In addition, there are uncertainties regarding the restoration of ecosystem processes associated with floodplain and spawning habitats in a river with highly controlled flows, such as the Stanislaus River. The studies implemented in Phase 1 of this project will help verify the presumed benefits and address the uncertainties with restoration, as indicated in Table 1. This project will also help guide planning for the full-scale restoration on the Stanislaus River in Phase 2 and for projects on other Central Valley rivers. In addition, the Phase 2 studies will provide useful information to help manage flow releases and water temperatures for trout in the Stanislaus River.

2. Proposed Scope of Work

a. Location and/or Geographic Boundaries of the Project

The project is located in Stanislaus, Tuolumne, and Calaveras counties in the Stanislaus River, East San Joaquin ecozone (Figures 8 and 9). The geographic coordinates for the project's center point are 120° 40' 00" longitude, 37° 49' 08" latitude. The upper project boundary, which is Two-Mile Bar, is at rivermile 57, and the lower project boundary, which is Riffle R78 downstream of Oakdale, is at rivermile 40.

b. Approach

Our overall goal is to improve salmonid spawning gravel quality and quantity, increase floodplain habitat, and ultimately increase smolt production, aquatic invertebrate abundance, and riparian habitat downstream of Goodwin Dam. Our objectives to achieve this goal are: (1) increase coarse sediment storage and supply in the Stanislaus River and (2) restore floodplain function and habitat. Our approach to achieve these objectives is to apply a newly emerging technique that has been successfully used on Clear Creek to address both problems: Remove gravel on heavily disturbed bars in a way that restores floodplain habitat, and insert

all or a portion of that gravel back into the river to increase gravel storage and supply. In effect, two sites are restored for the price of one. The acquisition of Two-Mile-Bar will provide a substantial long-term spawning gravel reserve adjacent to a section of the river that receives many spawning salmon but lacks spawning habitat. The proximity of gravel reserves to restoration sites is important because it eliminates the impact to the public caused by the trucking of heavy loads over small county roads.

Task 1. Project Management. Carl Mesick Consultants will manage this project, including submitting draft and final subcontracts, validation of costs, monitoring plans, final report, invoices, quarterly reports, responding to questions from CALFED managers, and general project oversight.

Task 2: Two-Mile Bar Appraisal and Acquisition. The Two-Mile Bar property, owned by Mr. Jim Mangante, has a 0.65-mile long abandoned secondary channel and a substantial amount of gravel (Figures 2 and 10). The Trust for Public Land will conduct a mineral and agricultural appraisal of the 50-acre Two Mile Bar property for the AFRP. The AFRP has agreed to fund a short-term and long-term conceptual restoration design for the site, which should begin in June 2000. If purchased, the U.S. Army Corps of Engineers (ACOE) has indicated they would be able to take fee title and manage the property.

Task 3. Restoration Planning. McBain and Trush and MBK Engineers will design conceptual and final grading plans to restore the floodplains at the Two-Mile Bar, Knights Ferry and Honolulu Bar reaches. Carl Mesick Consultants will design the plans for spawning habitat. A peer review process, that potentially includes fluvial geomorphologists, Dr. G. Mathias Kondolf and Dr. Jeff Mount, fishery biologists from the Stanislaus River Fish Group and the IEP San Joaquin River Salmon Project Work Team, the Stanislaus River Stakeholders Group, and the local citizenry will guide final restoration design. If disagreements arise among the various reviewers and stakeholders, different restoration strategies would be implemented at each of the three project reaches in an experimental design to provide for adaptive management.

Task 4. Environmental Permitting. Carl Mesick Consultants will prepare all required environmental reports and permits, including those for CEQA/NEPA compliance for acquisition and restoration. MBK Engineers will conduct a flood capacity analysis. KDH Biological Resource Consultation and their subcontractors will assist with CEQA/NEPA compliance. EnviroRisk Inc. will assess air quality impacts. Hawkins and Associates Engineers will assist with the encroachment permit for the road at Honolulu Bar.

Task 5: Gravel Augmentation, Floodplain Grading, and Road Construction. To obtain the 27,083 cubic yards of clean gravel needed to restore spawning habitat, dredger tailings and gravel roads will be removed from the floodplain surfaces at Two-Mile Bar, Knights Ferry, Lover's Leap and Honolulu Bar and from perched dredger tailings at Six-Mile Bar. Tailings will be purchased from Mr. Mark Hunter at Knights Ferry, Ms. Nancy Frymire at Six-Mile Bar, and from Mr. Gordon Crawford at Lover's Leap, all of whom are private landowners, in exchange for their cooperation with restoration and monitoring. The ACOE will donate dredger tailings at the Six-Mile Bar and the Honolulu Bar reaches for this project. The dredger tailings will be cleaned with 1/4-inch mesh screens and a five-inch grizzly to produce clean gravel suitable for spawning habitat. Sixteen sites in the five project reaches will receive gravel graded to provide a D_{50} of 15-20 mm, which should be suitable as spawning habitat for large trout, whereas another eight sites will receive gravel graded to provide a D_{50} of 35-40 mm which should provide a greater useful life for chinook salmon. Together with the KFGRP, there will be 16 riffles with the small gravel and 16 more with large gravel in the five project reaches. Spawning riffles will be designed to provide an upsloping bed gradient (e.g., tail of a pool), which was effective for the KFGRP.

Two-Mile Bar Reach: Approximately 3,750 cubic yards of dredger tailings will be processed to provide clean gravel with a D_{50} of 15-20 mm to be placed at three sites and 2,800 cubic yards of clean gravel with a D_{50} of 35-40 mm for spawning habitat to be placed at two sites where no riffles currently exist. Together with a KFGRP riffle that received gravel with a D_{50} of 35 mm in summer 1999, this reach will have four project riffles with small gravel and four with large gravel to provide replicate study sites. Riffles TM1, TM2, and TM3 will serve as control study sites. In addition to the 6,550 cubic yards of dredger tailings removed from the bar to provide spawning gravel, another 3,000 cubic yards will be moved to help restore the floodplain. To evaluate revegetation techniques, portions of the newly graded floodplain will receive topsoil, cottonwood cuttings, and irrigation, which currently exists at the site.

Knights Ferry Reach: A secondary channel on ACOE fee property near the town of Knights Ferry will be opened to provide floodplain habitat by removing encroached vegetation, a naturally deposited berm, and a

gravel road (Figures 2 and 11). Gravel from the floodplain's surface on ACOE property and dredger tailings purchased from Mr. Hunter, an adjacent property owner, will be used to (1) fill an in-river pit at the Knights Ferry Bridge that is head-cutting into Riffle R1, a KFGRP restoration site, (2) repair head-cutting at the ACOE portage trail at Russian Rapids, and (3) repair several gullies on Mr. Hunter's property. The purpose of repairing the Russian Rapids portage trail is to prevent, at least temporarily, the river from bypassing Russian Rapids, which is a short, high gradient series of rapids that are important for rafting and kayaking. Gravel will also be obtained from the ACOE and Hunter properties and processed to place 3,333 cubic yards of clean gravel with a D_{50} of 15-20 mm at Riffles RA, R2 and the downstream end of R10. Gravel would be added to the downstream end of Riffle R10, so that the upper section could continue to function as a control site for the KFGRP. These riffles will be compared to Riffles R1 and R5, which received gravel with a D_{50} of 35-40 mm in summer 1999 for the KFGRP. To evaluate revegetation techniques, portions of the newly graded floodplain will receive topsoil and cottonwood cuttings, but no irrigation.

Six-Mile Bar Reach: Six-Mile Bar, which consists of 15-acres of ACOE fee property, and the adjacent property owned by Ms. Nancy Frymire, were hydraulically mined which left numerous dredger tailings and active gullies (Figures 3 and 12). About 9,375 cubic yards of clean gravel with a D_{50} of 15-20 mm will be produced from the dredger tailings and placed at five sites Riffles, R12C-G. These sites will be compared with nearby KFGRP Riffles R12A, R12B, and R13, which received gravel with a D_{50} of 35-40 mm in summer 1999. Hawkins and Associates Engineering will develop grading plans for a gravel road on ACOE fee property that passes through the Six-Mile Bar property to link Frymire Road with a 14-acre ACOE fee property, which runs the length of the Lover's Leap reach in a 100-ft wide strip along the river. This road would facilitate future restoration and monitoring, if Western Sand and Gravel (WS&G) is able to resume commercially mining gravel from the bar in Lover's Leap. Pasture will be developed for Ms. Frymire where the dredger tailings are removed as mitigation to constructing the road through one of her existing pastures. When the new pasture is producing feed for her cattle, the gravel road will be constructed on the ACOE fee property. Several gullies will be repaired and the areas revegetated to minimize fine sediment intrusion.

Lover's Leap Reach: Dredger tailings would be purchased from WS&G to produce 1,688 cubic yards of clean gravel with a D_{50} of 15-20 mm to be placed at Riffles R13 and R17, and 4,867 cubic yards of clean gravel with a D_{50} of 35-40 mm to be placed at Riffles R12A, R13A, R13B, R15, R17, R19 and the in-river mine pit headcutting into Riffle R14 (Figures 3 and 13). About 533 cubic yards of gravel will be added to KFGRP Riffle R12A to increase its length from 30 feet to 80 feet to test whether riffle size affects spawner use. Riffles R12B and R13 received similarly sized gravel, they are about 60 feet long, and had higher densities of chinook salmon redds in fall 1999 than did Riffle R12A. About 800 cubic yards of gravel will be added to KFGRP Riffle R15, which received gravel from the Tuolumne River in summer 1999. Adding Stanislaus River gravel to R15 and comparing spawner use with Riffle R16, which also received Tuolumne River gravel in summer 1999, will provide additional data to help evaluate the effects of the source of gravel on spawner use. There were low densities of salmon redds in the restoration gravel placed at Riffles R15 and R16 in fall 1999.

Honolulu Bar Reach: There are substantial dredger tailings on ACOE fee property on the south side of the river at Honolulu Bar (Figures 3 and 14). The site burned in summer 1999 and most of the mature cottonwoods near the dredger tailings died. About 938 cubic yards of clean gravel with a D_{50} of 15-20 mm will be produced from the dredger tailings and placed at Riffles R31 and R32 and 333 cubic yards of clean gravel with a D_{50} of 35-40 mm will be placed at Riffle R33. The landscape where the dredger tailings will be removed would be graded and planted with native species to minimize fine sediment intrusion.

c. Monitoring and Assessment Plans

A monitoring plan must be robust enough to evaluate whether project objectives are achieved and/or test hypotheses. Recalling that project objectives are to (1) increase coarse sediment storage and supply in the Stanislaus River and (2) restore floodplain function and habitat, the monitoring plan will focus on: (1) gravel storage; (2) spawner use and gravel quality; (3) geomorphic performance (bed mobility, floodplain inundation); (4) riparian regeneration; and (5) juvenile use and food abundance.

The Project Monitoring Plan will be implemented under the five tasks described below. The methods are described in Table 1 in relation to each hypothesis. Monitoring will occur within the five project reaches and at the 25 KFGRP study riffles between Goodwin Dam and the city of Oakdale (RM 40). Monitoring will be continued at the KFGRP project sites for a fourth and fifth year to test the hypotheses that salmon prefer to

spawn in gravel mixtures cleaned with a 1/4 inch screen compared to mixtures cleaned with a 3/8 inch screen and that Stanislaus River salmonids prefer to spawn in native gravel compared to imported gravel. The monitoring plan will be submitted and approved by CALFED and/or CVPIA before monitoring begins.

Task 6 Fluvial Geomorphic Performance. The influence of the proposed channel-floodplain geometry and gravel of augmentation on the ecosystem function will be assessed with hydraulic modeling and monitoring within the context of the regulated flow regime, existing habitat, sediment routing, and vegetation encroachment. The scale of the gravel augmentation will also be evaluated within the context of the sediment transport capacity of the current, regulated flow regime. Bed mobility thresholds will be determined by placing tracer rocks at restoration sites to track their movement during high flows. Hypotheses 1, 4, and 5 (Table 1) will be tested. Tasks 6a and 6b would evaluate conditions in winter 2001-2002 and 2002-2003, respectively.

Task 7 Chinook Salmon Spawning Habitat. From mid-October to mid-December, spawner use, gravel permeability, intragravel dissolved oxygen concentrations, and streambed elevations will be monitored at all KFGRP riffles, all proposed restoration sites, and at five new control sites, Riffles TM2, TM3, R8, R33 and R35, between Goodwin Dam and the Orange Blossom Bridge (Figures 2, 3, 15 and 16). Hypotheses 2, 8, and 9 (Table 1) will be tested. Task 7a will augment the KFGRP monitoring by evaluating pre-project conditions at the new 20 project sites and five control sites in fall 2000. Tasks 7b and 7c evaluate post-project conditions at all 50 sites in fall 2001 and 2002, respectively.

Task 8 Steelhead/Rainbow Trout Spawning Habitat. From January through March, spawner use will be monitored at all 1997 KFGRP riffles, all proposed restoration sites, and at five new control sites between Goodwin Dam and the Orange Blossom Bridge (Figures 2, 3, 15, and 16). Hypothesis 3 (Table 1) will be tested. Tasks 8a, 8b, and 8c will evaluate conditions at 50 sites in late-winter 2001, 2002, and 2003, respectively.

Task 9 Juvenile Salmonid Rearing Habitat. Use of restored riffles by juvenile salmonids will be monitored during late winter, spring, and summer using snorkeling techniques in all project reaches and the KFGRP sites between Orange Blossom Bridge and Oakdale. Stomach samples will be collected using flushing techniques to assess important prey species. These data will be useful for evaluating food abundance at the project riffles (Task 10). Hypothesis 7 (Table 1) will be tested. Tasks 9a, 9b, and 9c will evaluate conditions in spring 2001, 2002, and 2003, respectively.

Task 10 Aquatic invertebrates. Benthic invertebrate samples will be collected at four riffles with a D_{50} of 15-20 mm, four riffles with a D_{50} of 35-40 mm, and four control riffles between February and April 2003, when flows are less than 500 cfs. Study riffles will be selected from project sites where the gravel was added in summer 2002 so that all will have "aged" for the same length of time. Hypothesis 6 (Table 1) will be tested.

Task 11 Riparian Colonization. Spring and summer botanical surveys will be made at Two-Mile Bar, Knights Ferry, and Honolulu Bar to evaluate native riparian species success at colonizing areas that were graded and lowered but otherwise untreated versus areas that were graded and lowered, but also received topsoil, cottonwood cuttings, and irrigation. Water table elevations will be monitored with piezometers installed during construction. Hypothesis 10 (Table 1) will be tested. Task 11 will evaluate conditions in spring 2003.

d. Data Handling and Storage

All data will be entered onto standardized forms that specify all data to be collected for each task. Field supervisors will confirm that all data have been accurately recorded before leaving the study sites by initialing each form. Survey data will be based upon an established coordinate system and datum so that all information can be easily georeferenced and used in a GIS. Permanent benchmarks related to this coordinate system and datum will be established at each site. Data collected electronically, such as with a total station, will be stored on hard media, such as a CD. All data analysis will be conducted using standard software programs, such as Excel. Copies of map files and final spreadsheet files will be submitted to CALFED.

e. Expected Products/Outcomes

Draft and final reports will be submitted for Tasks 6 through 11. A final construction report will be

submitted for Task 5. Copies of the appraisal reports for Task 2 and final construction plans for Task 3 will be submitted. Copies of all reports for CEPA/NEPA compliance, applications for environmental permits, and final permits will be submitted. Data will be submitted in hard copy and in an electronic format compatible with Microsoft Access. If requested by CALFED or CVPIA, oral presentations will be made at annual review meetings. A final report will be submitted that summarizes all project reports.

f. Work Schedule

The start and completion dates and major milestones for Tasks 1-11 are presented in Table 2. The schedule assumes that a contract is executed with either CALFED or AFRP by early January 2001. Most of the tasks can be funded separately if only of a portion of the project were to be funded. However, Task 4 cannot be completed until Task 3 has been completed. If this project were to be incrementally funded, Tasks 1, 2, 3, and 4 could be implemented first. Then Tasks 6-11 could be implemented as an intermediate stage. As a final stage, Task 5 Gravel Addition could be implemented.

g. Feasibility

Restoration of spawning habitat at the sites identified in this proposal is feasible and effective as demonstrated by the CALFED 1997 KFGRP. Gravel introduction and floodplain habitat restoration proposed here has been effectively implemented on Clear Creek below Whiskeytown Dam, which was funded by CVPIA and CALFED over the past few years. In regards to scheduling, the addition of 27,083 cubic yards of gravel can be completed during the 45-day period from early August through mid September.

The acquisition of Two-Mile-Bar depends on whether the landowner will accept the appraised value of the land and whether the ACOE will accept fee title. The ACOE has been mandated to acquire flowage easements over and manage additional lands along the Stanislaus River downstream of Goodwin Dam as mitigation for the construction of New Melones Dam pursuant to their 1977 Management Plan for the Stanislaus River. The ACOE has been involved in ongoing negotiations to acquire a flowage easement over approximately 60 acres at Two-Mile Bar for nearly three decades. The ACOE is in the process of condemning for this flowage easement, however the landowner has not accepted the compensation offered. The ACOE is aware of this proposal and is generally supportive of TPL's efforts with the landowner to acquire the land in fee title and convey it to the ACOE, thereby achieving both the ACOE's interest in the flowage easement and public river access, as well as the USFWS's interest in restoration of the site.

Environmental compliance and obtaining permits to do the work described herein should be feasible for this project as few impacts are anticipated. There should be minimal impacts to the public since all work will be done on-site and traffic on county roads will be minimal. For Task 9, a permit will be submitted to sample juvenile steelhead trout from the National Marine Fisheries Service (NMFS) prior to the implementation of Section 4(d) of the Endangered Species Act in June 2000 to extend the permit application process through the end of the year. Although this does not guarantee that a collecting permit will be granted, the proposed sampling techniques are acceptable to the NMFS.

Monitoring the use of project and control sites by spawning chinook salmon and steelhead/rainbow trout cannot be conducted during late winter when flood control releases are made and flows exceed 500 cfs. Flood control releases have been made during part or all of the spawning period in the last few years.

Table 1. Restoration actions, specific hypotheses to be tested, data requirements, study elements, and adaptive management for the Spawning Habitat and Floodplain Restoration in the Stanislaus River, Phase 1 project. An overall hypothesis of this project is that adding gravel will: (1) reduce armoring; (2) increase gravel quality (thereby increasing egg-emergence success and thus production); (3) increase gravel quantity (thereby increasing potential spawner habitat availability during larger runs, reduce superimposition, increase stock-recruitment curve); and (4) increase fry rearing habitat quantity and quality (thereby increasing production). A second overall hypothesis is that adding gravel and restoring floodplains will: (1) increase juvenile growth rates, survival, and production, and (2) reduce shear stress and gravel transport rates during infrequent high flows, increasing gravel longevity, discouraging armoring, and encouraging natural riparian regeneration.

Restoration Action	Hypotheses Tested	Data Required/Study Elements	Adaptive Management
1) Add 27,083 cubic yards of clean gravel to five reaches, each with different floodplain and channel configurations.	To maintain floodplain and spawning habitats in a highly flow regulated river, such as the Stanislaus River, encroaching vegetation will have to be removed and spawning gravel will have to be added periodically.	The effects of gravel augmentation, sediment deficit, and variations in flow under the current, regulated regime on sediment transport, sediment deposition, and vegetation encroachment will be modeled.	This model will help determine the balance between channel maintenance flows and mechanical restoration to maintain floodplain and spawning habitat in the Stanislaus River.
2) Add 27,083 cubic yards of clean gravel to 24 sites in five reaches.	Adding clean gravel to the streambed of the Stanislaus River will increase the number of chinook salmon fry produced per female by increasing the amount of spawning habitat and by improving gravel permeability and dissolved oxygen concentrations (D.O.).	Chinook salmon redds will be mapped during nine surveys at 10-day intervals from mid-Oct to mid-Dec at project and control riffles for one year before and one year after construction. Gravel permeability and D.O. will be measured at nine sites in each riffle at the beginning and end of the spawning period and once after heavy rains. The number of spawning females is estimated by DFG and the number of fry is currently estimated with screw traps by S.P. Cramer & Associates.	This project will help determine whether suitable spawning habitat limits the salmon population in the Stanislaus River. Studies conducted for this project will help show the relationship between increased spawning habitat and improved incubation conditions and fry production. These results will help judge the need for a gravel augmentation program.
3) Sixteen sites will receive gravel with a D_{50} of 15-20 mm, whereas 16 sites will have received gravel with a D_{50} of 35-40 mm.	Adding clean gravel with a D_{50} of 15-20 mm will increase the amount of spawning habitat for steelhead and rainbow trout, whereas gravel with a D_{50} of 35-40 mm is unsuitable for spawning trout.	Trout redds will be mapped during eight surveys at 10-day intervals from mid-Jan to mid-Mar, flow permitting, at project and control riffles for one year before and two years after construction.	If trout utilize the riffles with a D_{50} of 15-20 mm for spawning, but not those with a D_{50} of 35-40, which is the same used by at the 1997 KFGRP riffles and the 1996-1997 DFG riffles in Goodwin Canyon, then DFG could alter their ongoing project to benefit trout as well as salmon.
4) Sixteen sites will receive gravel with a D_{50} of 15-20 mm, whereas 16 sites will have received gravel with a D_{50} of 35-40 mm.	The useful life of riffles created with gravel with a D_{50} of 15-20 mm will be shorter than riffles created with gravel with a D_{50} of 35-40 mm due to higher sediment transport rates and lower initial gravel permeability.	A 200 kg sample of the restoration gravel will be sieved and weighed to provide a particle size distribution for each site. The relationship between bed shear stress and streamflow will be modeled for each site. Scour cores will be used at five sites with the small gravel and five sites with large gravel to monitor bed movement.	If spawning habitat is a limiting factor for salmonids in the Stanislaus River, these results will help determine a schedule for adding gravel to sustain the populations.

Table 1. Continued

Restoration Action	Hypotheses Tested	Data Required/Study Elements	Adaptive Management
5) Gravel will be placed at 24 riffles in five reaches that differ in floodplain and channel configurations.	Gravel mobilized from restoration riffles by high flows will be deposited downstream on riffles, relatively free of fines.	At project and control sites that vary in channel morphology, bed gradient, and sedimentation, tracer rocks and rocks with embedded radio transmitters will be used to track gravel mobilization and deposition as a function of flow over the three-year duration of the project Gravel permeability will also be monitored.	This study will help assess the effectiveness of high flows to maintain spawning habitat in the Stanislaus River.
6) Add clean gravel to 24 sites in five reaches.	Adding clean gravel for salmonid spawning habitat increases the abundance of Ephemeroptera, Plecoptera, and Trichoptera in the benthos and drift.	In 2 reaches, 4 benthic invertebrate samples will be collected at each of 4 riffles that receive gravel with a D_{50} of 15-20 mm, 4 riffles with a D_{50} of 35-40 mm, and 4 control riffles in spring. Substrate size distributions and permeabilities will characterize each benthic sample.	These results will help determine whether gravel addition improves food availability and presumably growth and survival for juvenile salmonids.
7) Add clean gravel to 24 sites in five reaches.	Adding clean gravel to create salmonid spawning habitat also increases the density of juvenile salmonids utilizing the habitat.	The relative density of juvenile salmonids will be estimated at all project and control riffles, including the KFGRP riffles, during late winter (e.g., Jan), spring (e.g., Apr), and summer (e.g., Jul) using snorkeling techniques. Seines will be used to collect juveniles to provide data on size and condition and stomach contents.	The data will be useful for comparing the benefits of gravel augmentation with floodplain restoration for juvenile salmonids. Data on the distribution of trout would be useful in the management of streamflow and water temperature for the recovery of steelhead trout.
8) Add Stanislaus River Rock to Riffle R15 where Tuolumne River Rock was added in fall 1999.	Chinook salmon spawner use is higher at riffles where Stanislaus River gravel is placed compared to riffles with imported rock.	Continue monitoring spawner use at all KFGRP project riffles, particularly Riffles R15 and R16 where Tuolumne River rock was placed in fall 1999. Riffle R16 will serve as a control.	These results will help verify the initial results from the KFGRP that gravel augmentation projects should utilize only gravel obtained near the project river.
9) Add Stanislaus River Rock to Riffle R12A where Stanislaus River Rock was added in fall 1999 to increase its length from 30 feet to 60 feet.	Chinook salmon spawner use is higher at restoration riffles longer than 40 feet than at smaller riffles.	Continue monitoring spawner use at all KFGRP project riffles, particularly Riffles R12A, and compare redd densities before and after the riffle's length is increased.	These results will help design riffle size for future gravel augmentation projects.
10) Floodplain habitats will be excavated close to the base water table. Revegetation methods will include adding topsoil, planting cuttings, and providing irrigation at Two-mile Bar and Knights Ferry.	Restoring floodplain habitats will allow cottonwoods and other native species to naturally reproduce under the existing flow regime. However, soil augmentation and irrigation may be necessary.	Colonization of riparian vegetation will be monitored in all restored floodplain habitats. Water table elevations will be monitored at five piezometers installed along the floodway in each reach. Root structure of dead cottonwood seedlings will be related to declining water table depth.	These results will be useful for the stage 2 floodplain restoration planning by this project, projects on other Central Valley rivers, and for recommending flow ramping rates on the Stanislaus River.

Table 2. The start and completion dates for each task by project year and quarter. Quarter #1 is from October 1 to December 31. Deliverable dates are shown with an "x". Work done in FY2000 will be funded by CVPIA Section b(13), the AFRP, and NFWF.

Project Task	Project Year – Quarter												
	FY00	2001-2	2001-3	2001-4	2002-1	2002-2	2002-3	2002-4	2003-1	2003-2	2003-3	2003-4	2004-1
Task 1 Project Management													
Subcontract Review		x											
Monitoring Plan		x											
Quarterly Reports		x	x	x	x	x	x	x	x	x	x	x	x
Final Project Report													x
Task 2: Two-Mile Bar													
Appraisal	x												
Acquisition		x											
Task 3: Restoration Planning													
Draft Planning		x	x										
Peer-review process			x										
Final Conceptual Plans				x									
Final Grading Plans					x								
Task 4: Environmental Permitting													
Listed Species Surveys						x							
Flood Conveyance Analysis		x											
Permitting process			x			x							
Task 5 Gravel Addition													
Gravel processing & Placement									x				
Revegetation									x				
Monitoring													
Task 6a Spring 2002 Fluvial Geomorphology									x x				
Task 6b Spring 2003 Fluvial Geomorphology													x x
Task 7a Fall 2000 Salmon Spawning Habitat		x											
Task 7b Fall 2001 Salmon Spawning Habitat							x	x					
Task 7c Fall 2002 Salmon Spawning Habitat											x	x	
Task 8a Winter 2001 Trout Spawning Habitat				x x							x		
Task 8b Winter 2002 Trout Spawning Habitat								x x					
Task 8c Winter 2003 Trout Spawning Habitat												x x	
Task 9a Spring 2001 Juvenile Rearing Habitat				x	x								
Task 9b Spring 2002 Juvenile Rearing Habitat								x	x				
Task 9c Spring 2003 Juvenile Rearing Habitat												x	x
Task 10 Aquatic Invertebrates												x	x
Task 11 Spring 2003 Riparian Colonization												x	x

Table 3. A broad conceptual model of the ecosystem processes, existing conditions, and how the proposed restoration actions will affect on the fish and their habitat in the Stanislaus River.

Conceptual model of natural conditions and why it was important to ecosystem constituents:
• River adjusts its dimensions to transport coarse sediment at rate nearly equal to that supplied by the upstream watershed. • Lots of gravel in the unconfined alluvial reaches (say downstream of Knights Ferry), less so in the upstream canyon, but gravel is still stored there. • Floodplains allowed shear stress during high flows to be moderated, so that coarse sediment is transported, but not in a catastrophic manner. • Lots of coarse sediment storage (of diverse particle size created by meandering/migrating channel) provided large quantity of high quality spawning and rearing habitat for variety of salmonids. • Channel avulsed and migrated during larger flows, creating floodplains • Functional floodplains and snowmelt hydrograph was conducive to natural riparian regeneration on floodplains surfaces • Functional floodplains and snowmelt hydrograph was conducive to high quality fry and juvenile salmonid rearing habitat on floodplains, increasing water temperature, food supply, and juvenile salmonid growth rates. • Functional floodplains and snowmelt hydrograph caused fry and juvenile salmonid to rear on floodplains, causing some stranding, but the higher growth rates more than compensated for stranding losses by increasing overall juvenile salmonid survival (Sommer, 2000). • Frequent mobilization (and subsequent replacement) of gravel deposits lowered fine sediment storage in spawning deposits, maintaining high salmonid egg-to-emergence success.
How natural conditions have changed and impacts to key ecosystem constituents:
• Dams reduced the magnitude, duration, and frequency of high flows. The virtual loss of flows capable of frequently scouring riparian vegetation allowed it to encroach along the low flow channel, fossilizing gravel bars and encouraging riparian berms to form that confine the river (Pelzman, 1973; McBain and Trush, 1997). • Dams blocked coarse sediment supply to downstream reaches. Even though the high flow regime was reduced, there were periods when flood control releases transported coarse sediments. The combination of riparian fossilization of gravel bars, confinement from riparian berms and dikes, instream gravel mining, and loss of upstream coarse sediment supply reduced the volume of coarse sediment storage in the channel and armored the bed surface (Dietrich, et al., 1989). Cumulatively, this process greatly reduced the quantity of coarse sediment storage in the river, thus spawning habitat quantity was greatly reduced to the point where only approximately 2,000 spawners can be supported by available habitat. • Riparian encroachment, dikes constructed to isolate "off-channel" mining pits from the river, gold dredging, and "off-channel" gravel mining have virtually eliminated functional floodplains along the lower Stanislaus River. These physical impacts, combined with the regulated flow regime, has also virtually eliminated natural regeneration of cottonwoods and several willow species. • Loss of floodplains and access to them by juvenile salmonids has reduced growth potential, thereby reducing production potential. • Reduction of high flows and gravel bar mobilization frequency, combined with increased land disturbance in sandy loam soils downstream of Goodwin Dam, has increased fine sediment storage in spawning gravel deposits, decreasing salmonid egg-to-emergence success.
Conceptual model of the restoration will provide anticipated benefits to key ecosystem constituents:
• Greatly increase gravel storage and supply by introducing 27,080 yd^3 at five reaches a short distance downstream of Goodwin Dam. This will potentially increase the amount of spawning habitat by about 50 percent; in addition, adding this clean gravel will greatly improve spawning gravel quality, thereby increasing salmonid egg-to-emergence success. • Recreating floodplains by removing confining dredger tailings as part of the gravel introduction efforts. Some pilot efforts to breach riparian berms to improve floodplain inundation will also increase floodplain habitat, riparian regeneration, and potential salmonid production. • Repairing gullies that deliver large volumes of sandy loam to the river will increase the longevity of high quality spawning gravels and increase long-term salmonid production.

D. Applicability to CALFED ERP Goals and Implementation Plan and CVPIA Priorities.

1. ERP Goals and CVPIA Priorities

This project will help achieve several CALFED ERP goals and CVPIA priorities.

1) Both the CALFED ERP and the CVPIA place a high priority on projects that help restore at-risk species that include fall-run chinook salmon and steelhead trout. Phase 1 of this project will restore a substantial amount of spawning habitat and Phase 2 would complete the restoration of a considerable amount of floodplain habitat. These actions should have a positive effect on adult reproduction, egg survival, and juvenile rearing for both species, as well as provide important information needed for the management of these species.
2) The CALFED ERP has a goal to rehabilitate natural ecosystem processes to support natural aquatic and associated terrestrial biotic communities. The restoration of floodplain habitat and the augmentation of gravel proposed by this project will contribute to achieving this goal.
3) CALFED's goal to enhance populations of selected species for sustainable commercial and recreational harvest, such as fall-run chinook salmon, rainbow trout, and steelhead trout, is also a focus of this project.
4) This project is contributing to CALFED's goal to protect functional habitat types throughout the watershed for public values.
5) This project's targets will contribute to achieving the CVPIA goal of doubling the natural production of anadromous fish in the Central Valley over levels that existed between1967-1991 [Section 3406(b)] as well as the goal to restore and replenish, as needed, spawning gravels on the upper Sacramento, American, and Stanislaus rivers [relative to Section 3406(b)(13)]. The FWS has identified the lack of and accessibility to quality stream channel and riparian habitat, as well as spawning gravel availability and suitability as limiting factors for anadromous fish. The CVPIA programs mentioned above have pledged to contribute funding toward the implementation of this project. This project reflects the efforts of the CVPIA implementing agencies to encourage partnerships to help implement provisions of the Act.

2. Relationship to Other Ecosystem Restoration Projects.

The Four Pumps Agreement funded the construction of three riffles as spawning habitat for chinook salmon in the Stanislaus River at River Miles 47.4, 50.4 and 50.9 in 1994. These riffles were poorly used by spawning salmon and most of the gravel was quickly eroded away partially due to the boulder weirs constructed at the site boundaries. The weirs were intended to stabilize the gravel, but instead increased turbulence and bed shear stress.

CALFED funded the Knights Ferry Gravel Replenishment Project (KFGRP) that added 13,000 tons of gravel between Two-Mile-Bar and the city of Oakdale in 1999. This project tested the source, size and placement of gravel for spawning habitat. The results of the KFGRP were used to design this project.

Section 3406 of the CVPIA direct the Anadromous Fish Restoration Program (AFRP) to develop a plan to guide restoration of anadromous fish. Part of the process includes the development of annual work plans that outline priorities for restoration actions for each fiscal year (FY). To this end, the CVPIA Section 3406(b)(13) program funded gravel augmentation in Goodwin Canyon in 1996 and 1997 approximately one mile upstream of the Two-Mile-Bar site. Additional gravel augmentation will occur in this reach over the next three years. Further, the AFRP has funding available to develop an adaptive management plan that includes a list of restoration actions for the Stanislaus River. This project will provide useful information for staff in the development of that plan.

3. Requests for Next-Phase Funding

This is not a proposal that is requesting next-phase funding.

4. Previous Recipients of CALFED or CVPIA Funding

Carl Mesick Consultants received funding for the Knights Ferry Gravel Replenishment Project, #97-N21, which added 13,000 tons of clean gravel to 18 sites on the Stanislaus River from Two-Mile Bar to the city of Oakdale in August 1999. Task 2 Permitting is 99% complete, except for a license from ACOE to work on their fee property, which was applied for in March 1999. The ACOE gave verbal permission to work on their property before construction began. Task 4 Gravel Placement was completed on 23 November 1999 after all 13,000 tons of gravel had been placed in the river and a final report was submitted to CALFED. The field work for Task 3, Pre-Project Habitat Evaluations was completed in August 1999 and the data analysis is ongoing and on schedule to produce the report in May 2000. The field work for Task 5 Fall 1999 Post-Project Habitat Evaluation will be completed as soon as flows decline to below 500 cfs, presumably August 2000, and the data analysis is ongoing and on schedule to produce a report in September 2000. Task 6 Fall 2000 Post-Project Habitat Evaluation will begin in August 2000 as scheduled. This project is scheduled for completion in June 2001.

5. System-Wide Ecosystem Benefits

The increased interest in and knowledge of the importance of dynamic river channels, and the relationship of fluvial geomorphic processes to ecosystem health and sustainability, both speak to the need for this project. The primary ecological objective of this project is to restore gravel and rebuild riffles in spawning reaches of the Stanislaus River, where insufficient in-channel habitat is limiting the production of chinook salmon and steelhead/rainbow trout, to evaluate the restoration potential of adjacent floodplain lands, and to develop conceptual restoration plans for those lands. In these reaches, flows cannot access the floodplain due to many factors including past land use practices such as mining. Because of river and land management practices, the natural channel and bank conditions that are favorable to salmon and steelhead and other important species do not occur. The dynamic processes of flow, sediment transport, channel erosion and deposition, establishment of riparian vegetation, etc. are limited, and thus spawning and rearing habitat is limited.

The Stanislaus River, as well as the Tuolumne, Merced and the San Joaquin Rivers, all provide habitat for fall-run chinook salmon and potentially steelhead trout. The former is a species of concern and the latter is listed as threatened under the Federal Endangered Species Act. The primary limiting factors for chinook salmon, and steelhead, in these rivers include insufficient spawning and rearing habitat. This project will address both of these factors and thus contribute to the increase in production of salmon and potentially steelhead/rainbow trout in the Stanislaus River and in the San Joaquin Basin in particular, and in the Central Valley in general.

Restoration of in-channel and riparian habitats in and along the San Joaquin tributaries is a priority for the U.S. Fish and Wildlife Service Anadromous Fish Restoration Program as well as for the CALFED ERP. These physical habitat elements are also identified in CALFED's Strategic Plan as factors that scientists need to achieve a better understanding of in order to improve design and restoration efforts that will produce the greatest ecological benefit. This project will provide important biological and physical process data derived from intensive monitoring programs that will contribute to improving the knowledge base and the development of restoration actions elsewhere in the San Joaquin basin as well as other Central Valley rivers.

E. Qualifications

Carl Mesick Consultants will be responsible for project management, designing spawning habitat restoration, public outreach, environmental permitting, construction supervision, and monitoring salmonid spawning habitat, riparian vegetation and aquatic invertebrates. Dr. Carl Mesick will manage this project and supervise the field work. He received his Ph.D. in fisheries science from the University of Arizona in 1984. He has nineteen years of experience as a fisheries scientist evaluating the effects of water diversions, hydroelectric operations, stream restoration projects, timber harvest, and mine operations on trout, salmon, non-game species of fish, and invertebrates. Dr. Mesick's expertise includes stream habitat restoration and studies of instream flow, water temperature, riparian vegetation, sedimentation, entrainment at diversion intakes, food availability, fish passage, fish habitat preference, fish population monitoring, and stream habitat classification. He has studied the spawning habitat of fall-run chinook salmon on the Stanislaus River since 1994. Dr. Mesick manages and supervises all phases of the Knights Ferry Gravel Replenishment Project funded by CALFED, including project design, environmental compliance and permitting, construction supervision, and the monitoring of salmonid spawning habitat. He has managed other large, multi year projects for the City of Los Angeles Department of Water and Power, Southern California Edison, and the Electric Power Research Institute. Dr. Mesick recently worked as a Habitat Restoration Coordinator for the U.S. Fish and Wildlife Service's Anadromous Fish Restoration Program.

The Trust for Public Land (TPL) will be responsible for property appraisals and land acquisition at Two-Mile-Bar. TPL is a national nonprofit conservation organization with over 26 years of experience in acquiring critical land and water resources from willing sellers for habitat and ecosystem restoration and open space preservation. TPL has acquired and conveyed into protective public or nonprofit stewardship well over 1.2 million acres in the United States valued at over $2.0 billion dollars. TPL's core competencies are in business, finance, law, and real estate. TPL's Western Rivers Program seeks to preserve and restore naturally functioning rivers and improve water quality through market-based solutions. Sonia Jacques is a Senior Project Manager at TPL with 7 years experience in negotiating and managing complex real estate acquisitions. During her tenure at TPL, Ms. Jacques has negotiated for and acquired purchase/option agreements on 18,000 acres of land in the Lake Tahoe Basin, the Northern Sierra, and the San Francisco Bay Area. Trained as an economist, Ms. Jacques has over 9 years of experience as an economic consultant to both public and private clients. Her areas of specialty include real estate financial feasibility and analyses, habitat and open space planning and financing. Ms. Jacques will be responsible for negotiation of the fee title acquisition. Elise Holland recently joined TPL as the manager of the Western Rivers Program. Ms. Holland's work at TPL involves developing projects associated with riparian and watershed lands and water rights, as well as developing programmatic elements to guide the growth of the Western Rivers Program. Prior to joining TPL, Ms. Holland was a consultant to the CALFED Bay-Delta Program on water projects operations and fishery management and protection in the Delta working closely with state and federal agency managers, and stakeholders from the environmental, urban, and agricultural communities. Previously, Ms. Holland directed the Fisheries Program at The Bay Institute where she focused her efforts on the restoration of anadromous fish throughout the Bay-Delta watershed. She also has experience as a land- and water-use consultant to private industry. Ms. Holland will be responsible for project oversight.

McBain and Trush will be responsible for the conceptual and final designs for floodplain restoration, geomorphic monitoring, and will assist with public outreach and aquatic invertebrate studies. Scott McBain and Darren Mierau will perform most of these tasks. Mr. McBain has 10 years of research and management experience, focusing on improving river ecosystems downstream of dams. His experience has focused on gravel-bed mobility and scour thresholds, bedload transport and deposition processes, effects of high flows on channel morphology, watershed sediment yields, and river corridor restoration. He has directed and managed a variety of projects, including a process-based corridor restoration plan for the Tuolumne River, a maintenance flow study on the Trinity River, a floodway restoration project on lower Clear Creek, several sediment management plans downstream of large dams, and developed conceptual restoration designs for several reaches of the Tuolumne River damaged by instream gravel extraction. Mr. McBain has received his Bachelor of Science degree in Environmental Resources Engineering department at Humboldt State University, and his Master of Science degree in Civil Engineering at the University of California at Berkeley. His focus at the University of California was hydraulic engineering under the supervision of Dr. H.W. Shen and fluvial geomorphology under Dr. William E. Dietrich. Mr. Mierau is an aquatic ecologist specializing in inland fisheries research and management, stream ecology, and salmonid biology. He

completed his Master of Science degree in the Biology program at Humboldt State University, studying the taxonomy and community ecology of benthic invertebrates in Hat Creek, CA. His special interests include aquatic invertebrates, fish population dynamics, and methods to quantify the link between stream physical processes and fish habitat.

S.P. Cramer & Associates will be responsible for monitoring juvenile salmonids (Task 9). S.P. Cramer & Associates, Inc. (SPCA) is a fisheries consulting firm that specializes in salmon and trout management issues on the West Coast. Mr. Doug Demko, a fish biologist who has been with the firm for 11 years, will help prepare the monitoring plan and lead the field studies. Doug has been working on Stanislaus River issues for private water rights holders and the USFWS since 1993. His crew of biologists and technicians are experienced with fisheries field research techniques and have considerable experience snorkeling and seining in the Stanislaus River.

MBK Engineers (formerly Murray, Burns & Kienlen) will be responsible for the HEC analysis required for conceptual floodplain planning (Task 3) and for flood conveyance capacity evaluations required for environmental permitting (Task 4). MBK is located in Sacramento and has 32 years of experience with flood analysis, hydrology studies, regulatory permitting services, and stream restoration. The firm has worked extensively on the Stanislaus River and assisted with permitting for the Knights Ferry Gravel Replenishment Project. Mr. Mark E. Fortner, P.E., P.L.S., is a senior engineer with 15 years of professional experience who will manage their work.

Hawkins and Associates Engineers will develop the final grading plans for floodplains and roads, the encroachment permit for Honolulu Bar, and as-built surveys for the floodplain and spawning habitat restoration (Task 5). They will also assist with construction staking and supervision. Hawkins and Associates Engineers is a new firm located in Modesto. Its principles have over 35 years of engineering experience and have either worked for or personally know many of the landowners associated with this project. Mr. Rodrick Hawkins, who will supervise their work, is licensed civil engineer that graduated from CAL Poly San Luis Obispo in 1989. Mr. Crolie Lindsay is a licensed civil engineer, land surveyor and general contractor in the State of California, who has worked extensively on the Stanislaus River.

KDH Biological Resource Consultation will assist with the NEPA/CEQA compliance. KDH Biological Resource Consultation (KDH) will be responsible for surveys of special status species under the Endangered Species Act and the California Endangered Species Act required for environmental permitting. KDH, which was founded in 1996, specializes in endangered species evaluations and their staff have conducted numerous surveys in a variety of habitats ranging from forestlands and montane meadows to Central Valley riparian and upland habitats, and agricultural areas. Mr. Dennis Hood, who has 13 years of experience conducting terrestrial and aquatic investigations in California and Oregon, will supervise their work and the work of their subcontractors. KDH will subcontract to EIP Associates for special-status amphibian and small mammal surveys, a noise analysis, and other miscellaneous analyses for NEPA/CEQA compliance. EIP Associates has more than 30 years of experience and has prepared more than 5,000 environmental documents within California. Mr. Mike Bumgardner will supervise their work. KDH will also subcontract with CCS Planning and Engineering, Inc. (CCS) to conduct traffic analyses. CCS is a Sacramento based firm founded in 1989 that specializes in transportation planning, traffic engineering, and design projects. Mr. Gary Hansen, the Branch Manager of the Sacramento office, will oversee their work. Mr. Hansen has over 18 years experience in transportation planning and traffic engineering.

EnviroRisk, Inc. will assist with the air quality analysis for the NEPA/CEQA analysis. EnviroRisk, which was founded in 1996, specializes in the evaluation of air quality, dispersion modeling and risk assessment for CEQA, NEPA, CERCLA, and RCRA. Dr. Amy Hoffman, who would conduct the analysis, has over ten years of experience as an environmental/analytical chemist that includes evaluations of the potential health effects associated with dust and pollutants in air, soil, and water.

The Contractor for Task 7a, Gravel Placement and Road Construction, has not been selected. Sean Smith, a general engineering contractor with 23 years of experience, developed the estimated costs for this task. He supervised the processing and placement of gravel for the Department of Fish and Game Goodwin Canyon Gravel Replenishment Project on the Stanislaus River in 1997 and the Knights Ferry Gravel Replenishment Project in 1999.

F. Cost

1. Budget

A budget summary, the total budget, annual budget, and budget details are presented for each task in Tables 3a, 4, 5, and 6 respectively. The budget was structured so that individual tasks could be selected for funding and to allow withheld payments (Payment Retention Clause) to be paid in a timely fashion.

A contingency budget has been submitted to maximize flexibility in project selection and design. First, in the event that this project is partially funded, it may be necessary to make adjustments to the subtask budgets for construction (Task 5) and spawning habitat monitoring (Tasks 7 and 8). The subtask budgets were computed as simple percentages of the total task costs relative to the number of sites in each reach and those percentages may not be adequate to fully fund individually selected subtasks. Second, the peer review process may alter the scope of work for planning, construction, and monitoring and so additional funds may be necessary.

Explanation of Costs

Carl Mesick Consultants is a small business without typical employees and so it does not set salaries according to overhead or benefits. Instead, billing rates are set to be competitive with other environmental consulting firms. Carl Mesick Consultants does incur overhead costs associated with computer equipment and software, office supplies, books, phone and internet charges, utilities, and furniture, as well as unreimbursed time spent on proposal development, accounting and taxes, quarterly reports, invoices, attending watershed work groups, coordinating with CALFED project managers, employee management, literature searches, and maintaining equipment and vehicles. Approximately 55% of the salary-billing rate provides compensation for these overhead costs. Benefit costs include health care insurance, which is about 3% of the salary billing rates. When additional staff are required, employees are leased from personnel management firms which typically charge a 15% fee to cover workers compensation insurance, payroll taxes, and payroll costs, and another 10% fee for their profits.

2. Cost-Sharing

US Fish and Wildlife Service, US Bureau of Reclamation: CVPIA Section 3406(b)(13)
Two-Mile-Bar is one of the few places in the Goodwin Canyon reach of the Stanislaus River that offers the potential for increased spawning habitat as well as the potential to restore the floodplain area that is currently not accessible to flows or fish. The Annual Work Plan for this fiscal year identifies $200,000 for restoration of the Two-Mile Bar site. These funds are earmarked to support this project and are planned for expenditure in fall 2000 to support planning and monitoring at Two-Mile Bar and other sites.

US Fish and Wildlife Service: CVPIA Anadromous Fish Restoration Program (AFRP)
The AFRP has allocated $50,000 for FY00 for the appraisal and restoration planning for Two-Mile-Bar. The FWS will administer these funds to determine fair market value of the land, and to undertake the conceptual restoration planning for the site.

The National Fish and Wildlife Foundation (NFWF)
TPL has submitted a proposal to NFWF requesting $100,000 in challenge grant funds through the Pacific Grassroots Salmon Initiative. These funds would be used to support the acquisition of, restoration planning, and monitoring for Two-Mile-Bar. NFWF will select proposals for funding in late May 2000. Funds are required to be matched by non-federal dollars. Funds available under the CVPIA 3406(b)(13) program are derived from Prop 204 funds and would meet this matching requirement.

Carl Mesick Consultants will donate an estimated 492 hours of labor and all materials for project management, a value of about $32,030.

The Trust for Public Land will donate project oversight and overhead costs associated with appraisal and acquisition elements, a value of about $52,000.

The U.S. Army Corps of Engineers will donate about 9,292 cubic yards of gravel from dredger tailings and perched gravel bars from their fee property, a value of about $14,496.

Table 3a. Summary Budget for "Spawning Habitat and Floodplain Restoration in the Stanislaus River, Phase 1."

	Cost Share	CALFED or CVPIA Cost	Total Cost	Action
Task 1 Project Management		**$10.910**	$10,910	Summary report
Task 4 Permitting		**$120,565**	$120,565	NEPA/CEQA compliance, environmental permits, listed species surveys, grading permits, and encroachment permits
Tasks 2, 3, 5a-e, 7, and 8 by project reach				
Two-Mile Bar (RM 57)				
Appraisal, Acquisition, Planning & Construction	$133,689	$454,102	$587,791	Appraise/acquire 50-acre gravel bar, develop restoration plans, place 6,550 cubic yards of gravel at seven sites, and partially restore floodplain in an important area for steelhead/rainbow trout.
Salmon Spawning Surveys 2 years		$48,162	$48,162	Monitor salmon spawner use and habitat quality at seven project sites and two control sites for two years.
Trout Spawning Surveys 3 years	$12,219	$24,438	$36,657	Monitor steelhead/rainbow spawner use at seven project sites and two control sites for three years.
Total Cost	$145,908	**$526,702**	$672,610	
Knights Ferry (RM 54)				
Planning & Construction	$50,792	$140,350	$191,142	Develop restoration plans, place 3,333 cubic yards of gravel at four sites, partially restore 0.8 miles of floodplain, and repair gullies.
Salmon Spawning Surveys 2 years		$10,724	$10,724	Monitor salmon spawner use and habitat quality at three sites and 1 control for two years.
Trout Spawning Surveys 3 years	$2,706	$5,412	$8,118	Monitor steelhead/rainbow spawner use at three sites and one control for three years.
Total Cost	$53,498	**$156,486**	$209,984	
Six-Mile Bar (RM 53.5)				
Planning & Construction	$18,778	$375,736	$394,514	Develop grading plans, place 9,375 cubic yards of gravel at 5 sites, develop access road for restoration, repair gullies, improve pasture.
Salmon Spawning Surveys 2 years		$26,688	$26,688	Monitor salmon spawner use and habitat quality at five project sites for two years
Trout Spawning Surveys 3 years	$6,799	$13,598	$20,397	Monitor steelhead/rainbow spawner use at five project sites for three years.
Total Cost	$25,577	**$416,022**	$441,599	

Table 3a. Summary Budget (Continued).

Lover's Leap (RM 53.5)	Cost Share	CALFED or CVPIA Cost	Total Cost	Action
Planning & Construction	$14,649	$245,980	$260,629	Develop grading plans, place 6,554 cubic yards of gravel at three new sites, a headcutting pit, and three KFGRP sites to test hypotheses on riffle size and gravel source.
Salmon Spawning Surveys 2 years		$16,100	$16,100	Monitor salmon spawner use and habitat quality at three project sites for two years
Trout Spawning Surveys 3 years		$12,090	$12,090	Monitor steelhead/rainbow spawner use at three project sites for three years.
Total Cost	$14,649	**$274,170**	$288,819	
Honolulu Bar (RM 49.5)				
Planning & Construction	$46,969	$65,622	$112,591	Develop restoration plans, place 1,271 cubic yards of gravel at 3 sites, partially restore floodplain and develop access road for restoration.
Salmon Spawning Surveys 2 years		$26,688	$26,688	Monitor salmon spawner use and habitat quality at three project sites and two control sites for two years
Trout Spawning Surveys 3 years		$20,397	$20,397	Monitor steelhead/rainbow spawner use at three project sites and two control sites for three years.
Total Cost	$46,969	**$112,707**	$159,676	
Task 5f Revegetation		**$22,750**	$22,750	Plant native species in various experimental conditions.
Task 6 Fluvial Geomorphic Studies, All Reaches, 2 yrs		**$187,070**	$187,070	Assess geomorphic performance relative to floodplain function, gravel size, channel morphology, and streamflow in various reaches.
Task 7a Salmon Spawning Surveys at New Project Sites, FY 2000	$55,888		$55,888	Monitor salmon spawner use and habitat quality at the 24 project sites and five control sites in conjunction with the KFGRP monitoring to help establish baseline conditions.
Task 7b & 7c Continue KFGRP Salmon Spawning Surveys, 2 years		**$132,400**	$132,400	Continue salmon spawner use and habitat quality use at the 25 KFGRP sites relative to the size and source of gravel, gravel volume, and gravel permeability and intragravel D.O. for a 4th and 5th year.
Task 8 Trout Spawning Surveys, 3 years		**$105,024**	$105,024	Monitor steelhead/rainbow spawner use from Jan through March at the 25 KFGRP sites for three years to help evaluate gravel size.
Task 9 Juvenile Rearing Habitat Surveys, 3 years		**$144,705**	$144,705	Monitor the use of juvenile salmonids at project riffles compared to non-restored habitats from Two-Mile Bar to Oakdale for three years.
Task 10 Aquatic Invertebrates		**$29,053**	$29,053	Assess the abundance of aquatic invertebrates at project sites relative to two sizes of gravel and control sites.
Task 11 Riparian Colonization Studies		**$22,550**	$22,550	Assess the affect of irrigation, topsoil augmentation, and planting cuttings at restored floodplain sites.
Contingency Budget	$7,511	**$226,111**	$233,622	
Total Cost	$350,000	**$2,487,225**	$2,837,225	

G. Local Involvement

Public outreach will be achieved by (1) sending Letters of Notification to the county planning departments and the clerks of the Board of Supervisors of Stanislaus, Tuolumne, and Calaveras counties, (2) making presentations at town meetings held monthly in Knights Ferry, (2) notifying all adjoining property owners by mail as required by the California State Lands Commission, and (3) making regular reports of planned activities to the Oakdale Leader, the local newspaper, and The Record, a newspaper for the City of Stockton. The adjacent property owners, local governments, watershed groups, and the general public will be encouraged to comment on the restoration design throughout both planning phases described in Task 2 of this project.

The adjacent property owners at the Two-Mile Bar, Six-Mile Bar, and Lover's Leap Reaches have been verbally informed that we are submitting a proposal to restore and study floodplain and spawning habitats near their properties. If Tasks 2 and 3 are funded, all adjacent property owners will be sent a letter that briefly describes our project as part of the application of acquiring a General Lease from the California State Lands Commission. We will also invite them to attend town meetings in Knights Ferry where Carl Mesick Consultants and McBain and Trush will give presentations and solicit comments on the first and second phases of restoration planning. If their comments result in revisions, then additional meetings will be scheduled so that the landowners can review the final plans.

A letter agreement with Mr. Jim Mangante, private landowner of Two-Mile-Bar, stipulating that he is a willing seller and understands a request for funding is being made to CALFED, is attached. Letter agreements with Mr. Mark Hunter, Mr. Gordon Crawford, and Ms. Nancy Frymire, private landowners in the Knights Ferry, Lover's Leap, and Six-Mile Bar sites respectively, that grant permission for access their lands for restoration construction are also attached. Access to all other project and study sites will be on U.S. Army Corps of Engineers fee property. A letter from the ACOE Stanislaus River Park manager supporting this project is also attached.

The Letters of Notification that were sent to the counties of Stanislaus, Tuolumne, and Calaveras are attached.

The local watershed groups and conservancies include the Stanislaus Fly Fishermen and the Stanislaus Fisheries Group, which consists of fishery biologists with various government agencies and the local irrigation districts and water districts. Both of these groups have been given copies of this proposal and asked to provide comments. They will also be invited to attend all town meetings and to provide comments on the planning and research throughout the duration of the project.

The general public will be notified of this project and all related town meetings through articles printed in the local newspapers, the Oakdale Leader and The Record. Carl Mesick Consultants worked closely with the environmental reporters for these newspapers during the implementation of the 1997 CALFED Knights Ferry Gravel Replenishment Project and will continue to do so for this project.

A letter of support for this project from the Board of the Stockton East Water District is attached. The Stockton East Water District funded the basic research that provided the scientific foundation for this project and the Knights Ferry Gravel Replenishment Project.

H. Compliance with Standard Terms and Conditions.

The applicants will comply with all state and federal terms. The state form, Nondiscrimination Compliance Statement has been completed and attached for Carl Mesick Consultants, The Trust for Public Land, McBain & Trush, S.P. Cramer & Associates, Hawkins & Associates Engineers, MBK Engineers, and KDH Biological Resource Consultation. The federal form, Standard Form 424, which was completed by Carl Mesick Consultants, is attached.

Although this is a proposed construction project, the forms required for construction projects are not attached because the contractor has not yet been selected. If this project is selected for funding, competitive bids will be solicited for the Task 5 Gravel Augmentation, Grading, and Road Construction. The Proof of Contractor's License, Non-collusion Affidavit, a bidders bond, a copy of the Service & Consultant Service Contracts with Nonpublic Entity, Additional Standard Clauses, General Conditions for Public Works Contracts, Insurance Requirements, Nondiscrimination Construction Contract Specifications, Payment Bond, Performance Bond, and Certificate of Insurance will be submitted with the construction subcontract.

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J. Threshold Requirements

Attached are the Letters of Notification, Environmental Compliance Checklist, Land Use Checklist, and contract forms.

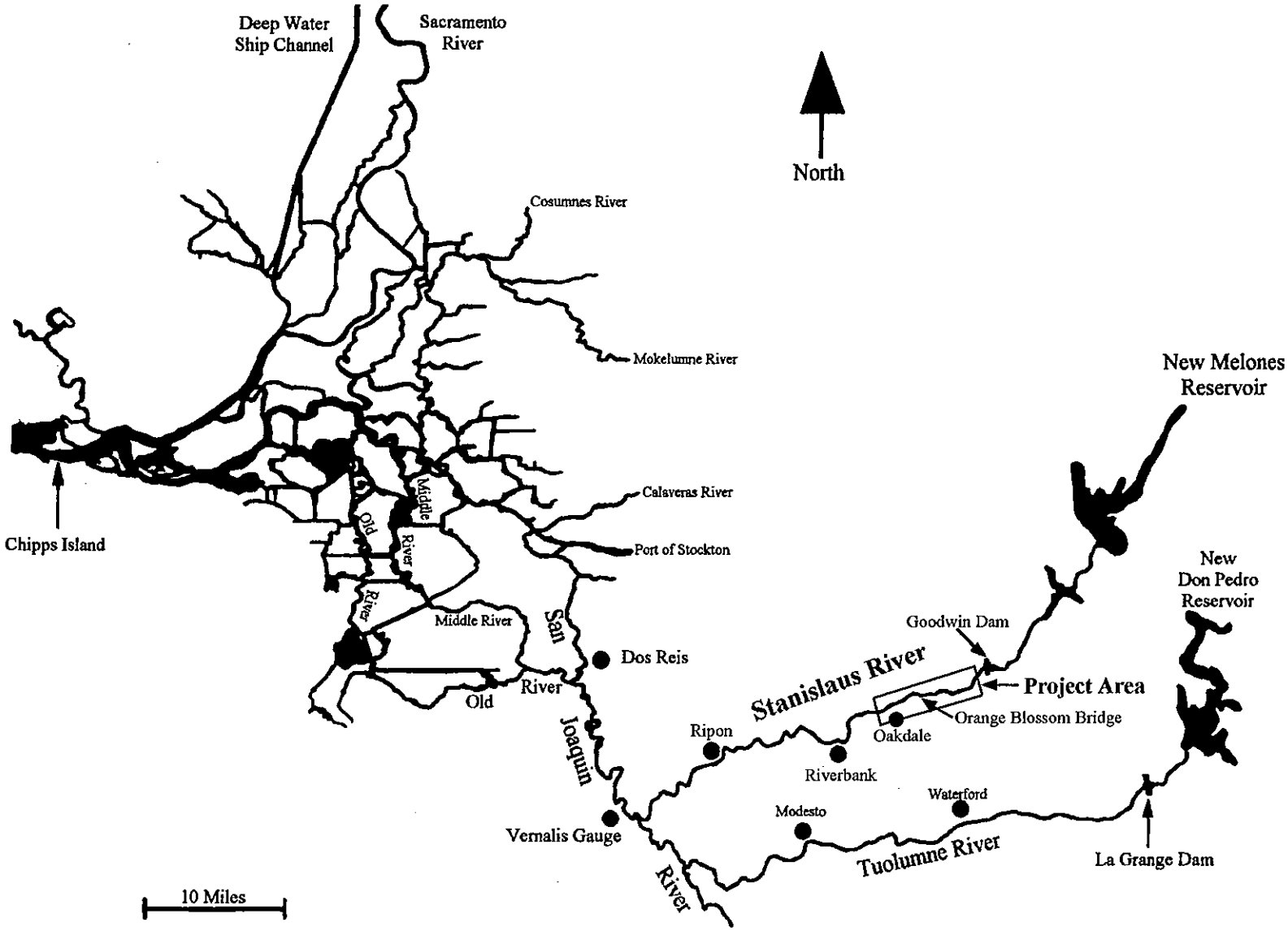

Figure 1. Map of the Sacramento-San Joaquin Delta showing the Stanislaus River, Goodwin Dam, and the project area from Two-Mile-Bar to Oakdale.

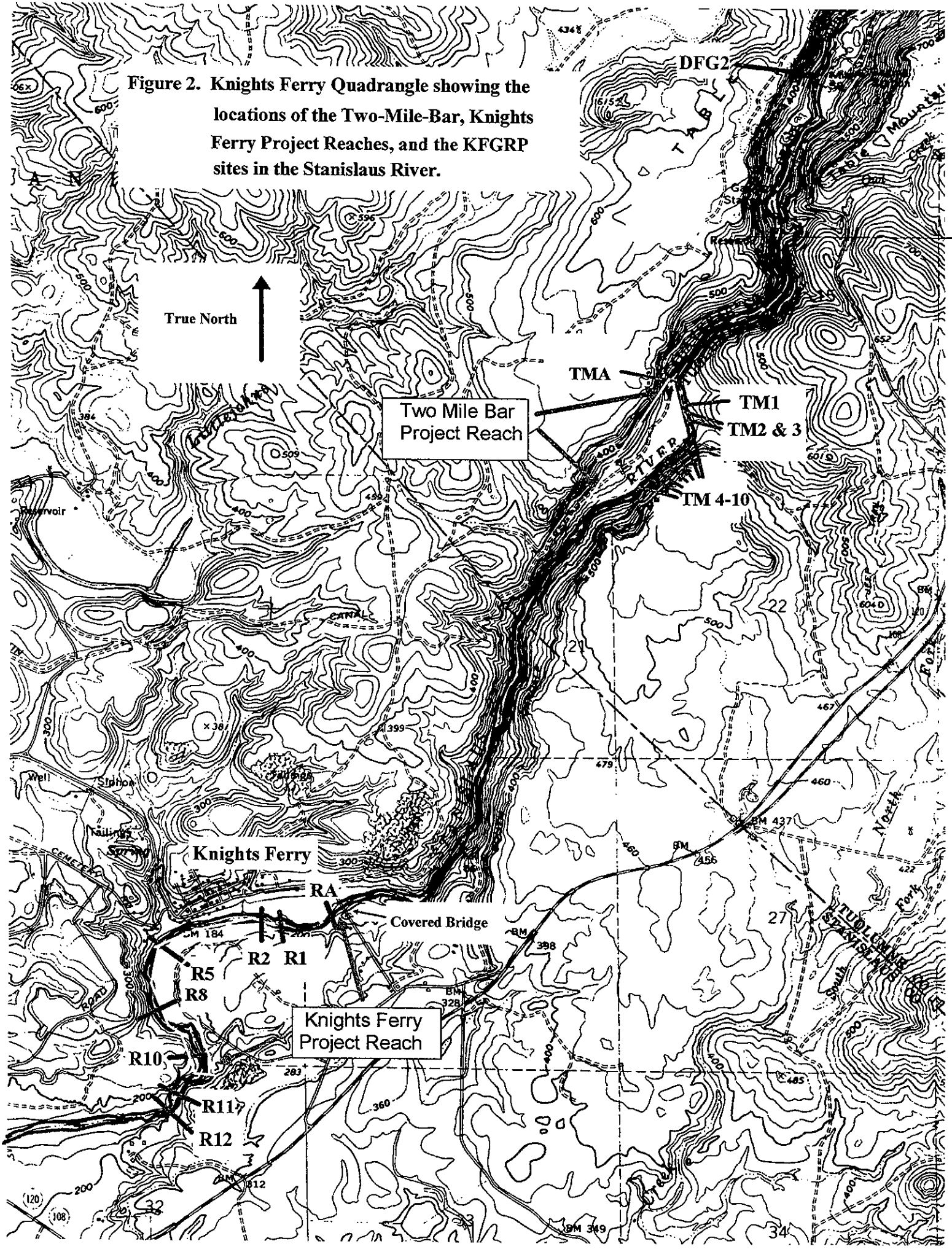

Figure 2. Knights Ferry Quadrangle showing the locations of the Two-Mile-Bar, Knights Ferry Project Reaches, and the KFGRP sites in the Stanislaus River.

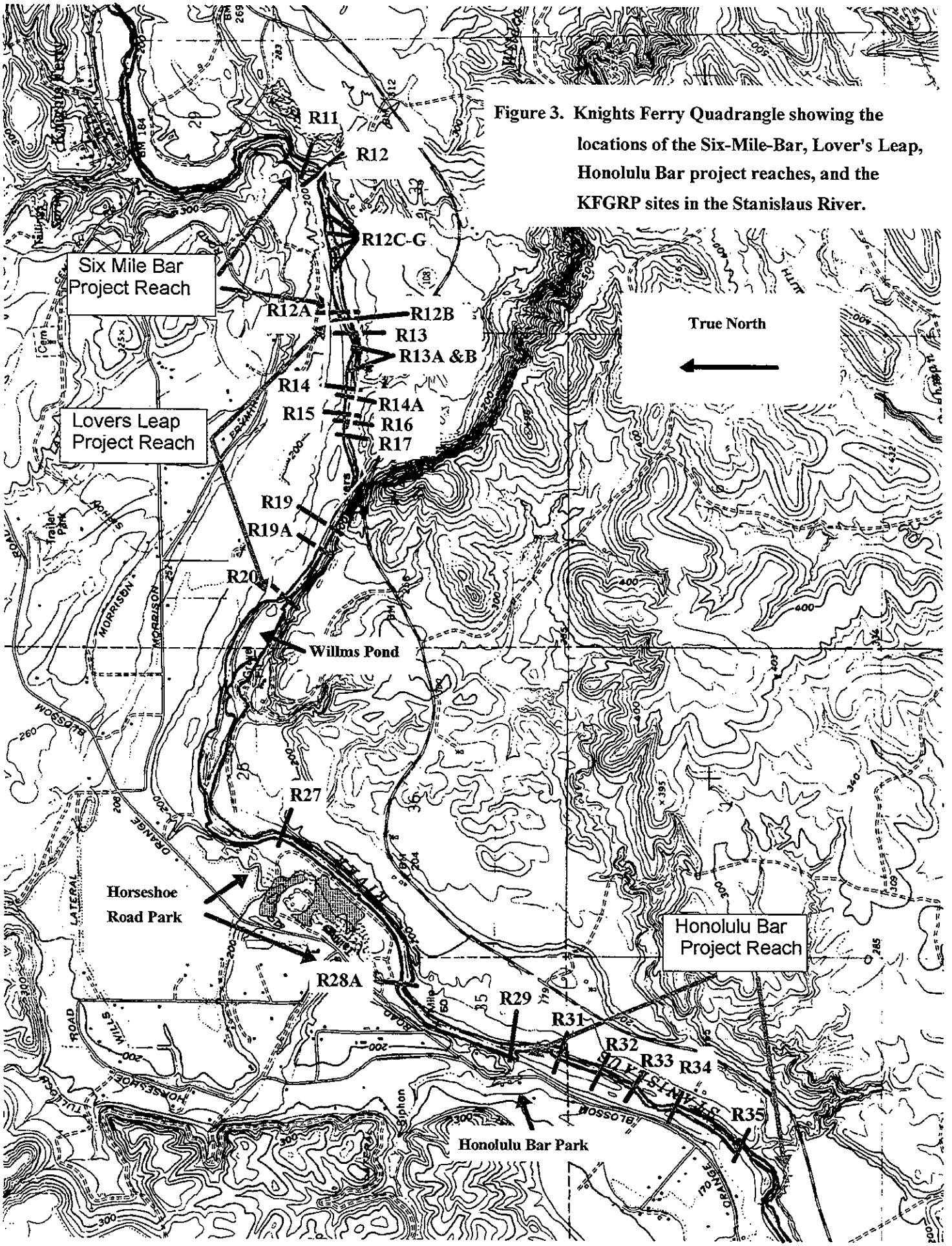

Figure 3. Knights Ferry Quadrangle showing the locations of the Six-Mile-Bar, Lover's Leap, Honolulu Bar project reaches, and the KFGRP sites in the Stanislaus River.

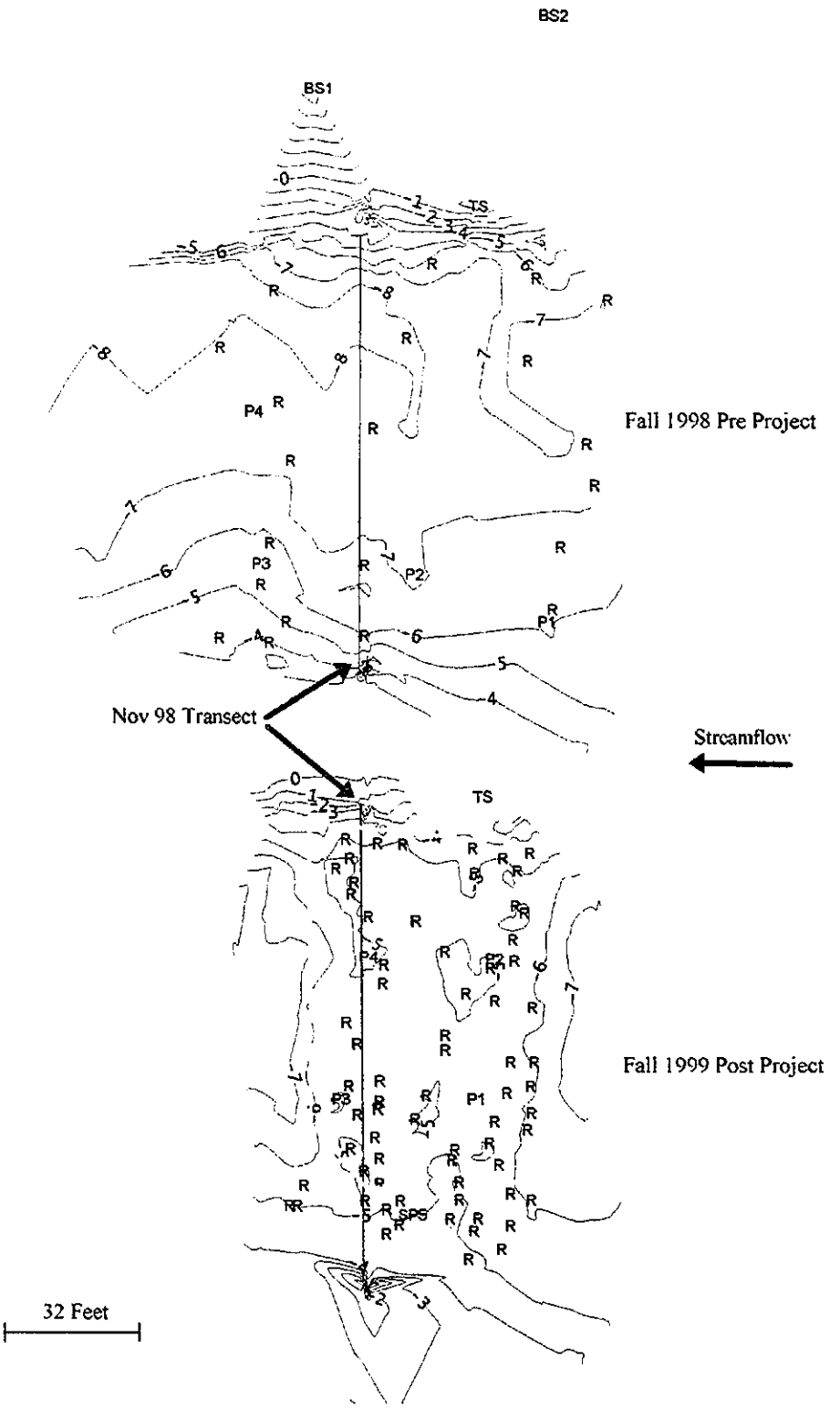

Figure 4. Contour map of Riffle R12B in the Lover's Leap Reach showing the locations of fall-run chinook salmon redds (R) in Fall 1998, which was prior to gravel placement, the location where the gravel was placed in Summer 1999 (yellow polygon) for the Knights Ferry Gravel Replenishment Project, and the locations of fall-run chinook salmon redds (R) in Fall 1999.

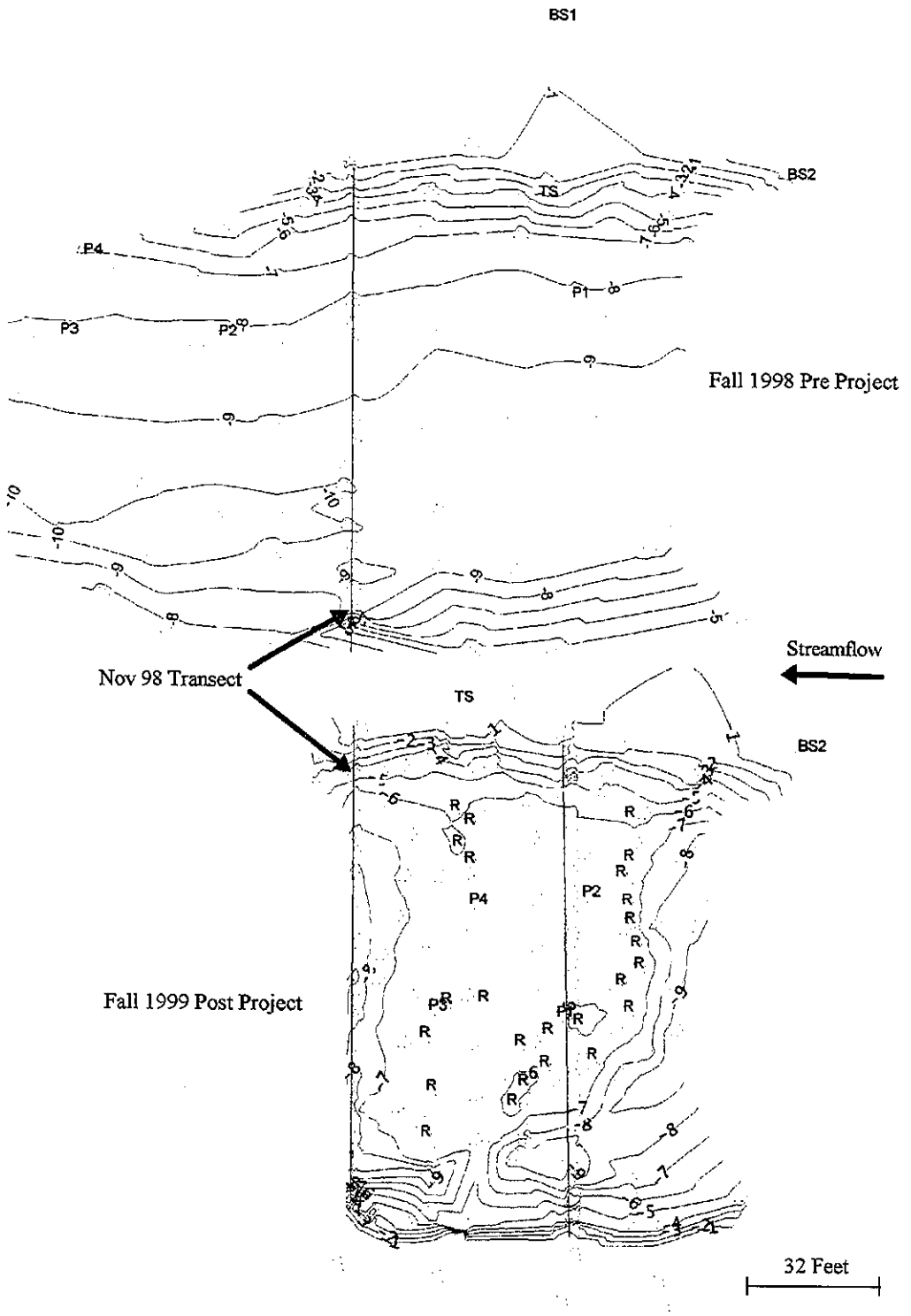

Figure 5. Contour map of Riffle R19A in the Lover's Leap Reach showing the locations of fall-run chinook salmon redds (R) in Fall 1998, which was prior to gravel placement, the location where the gravel was placed in Summer 1999 (yellow polygon) for the Knights Ferry Gravel Replenishment Project, and the locations of fall-run chinook salmon redds (R) in Fall 1999.

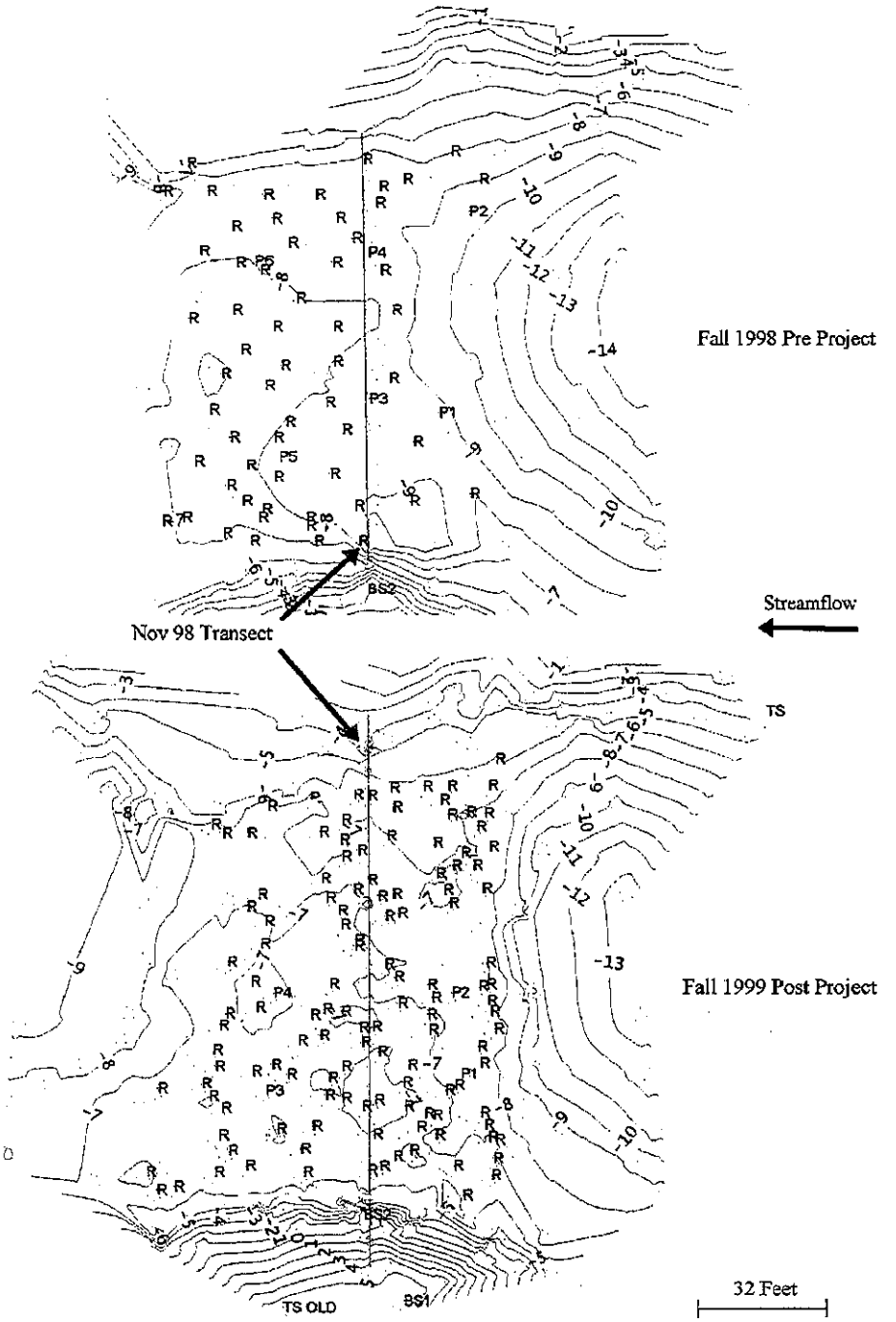

Figure 6. Contour map of Riffle R1 in the Knights Ferry Reach showing the locations of fall-run chinook salmon redds (R) in Fall 1998, which was prior to gravel placement, the location where the gravel was placed in Summer 1999 (yellow polygon) for the Knights Ferry Gravel Replenishment Project, and the locations of fall-run chinook salmon redds (R) in Fall 1999.

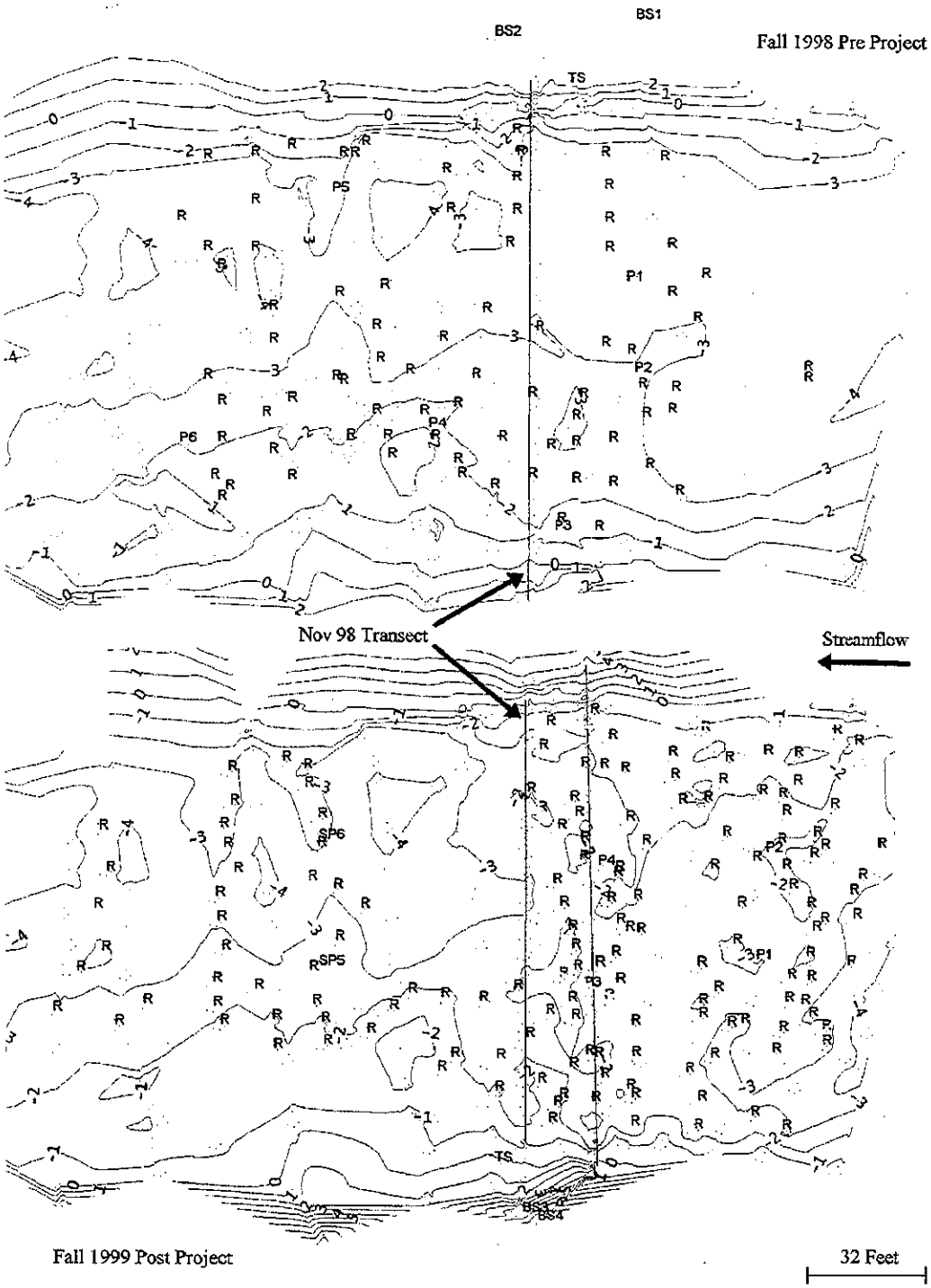

Figure 7. Contour map of Riffle R19 in the Lover's Leap Reach showing the locations of fall-run chinook salmon redds (R) in Fall 1998, which was prior to gravel placement, the location where the gravel was placed in Summer 1999 (yellow polygon) for the Knights Ferry Gravel Replenishment Project, and the locations of fall-run chinook salmon redds (R) in Fall 1999.

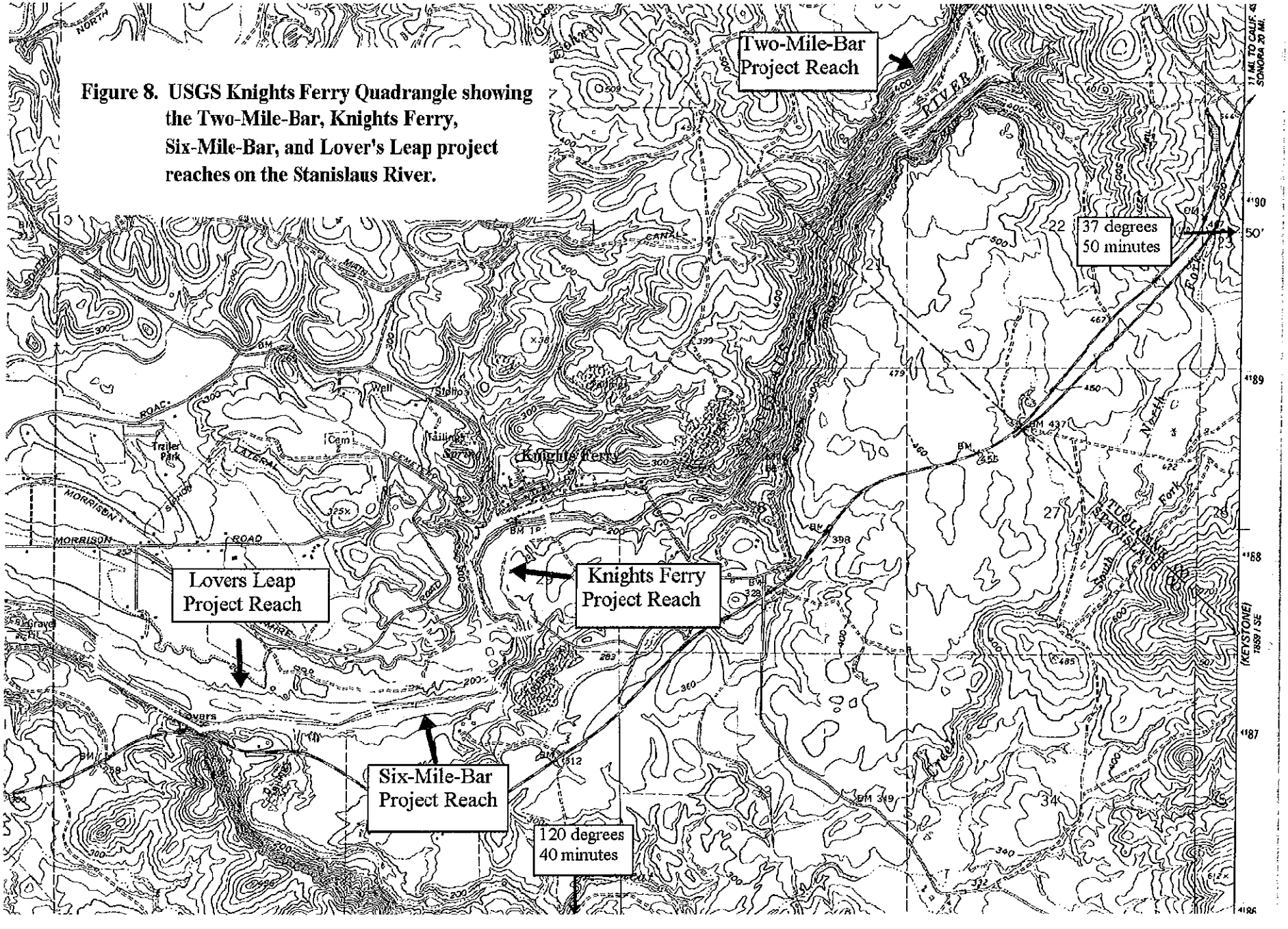

Figure 8. USGS Knights Ferry Quadrangle showing the Two-Mile-Bar, Knights Ferry, Six-Mile-Bar, and Lover's Leap project reaches on the Stanislaus River.

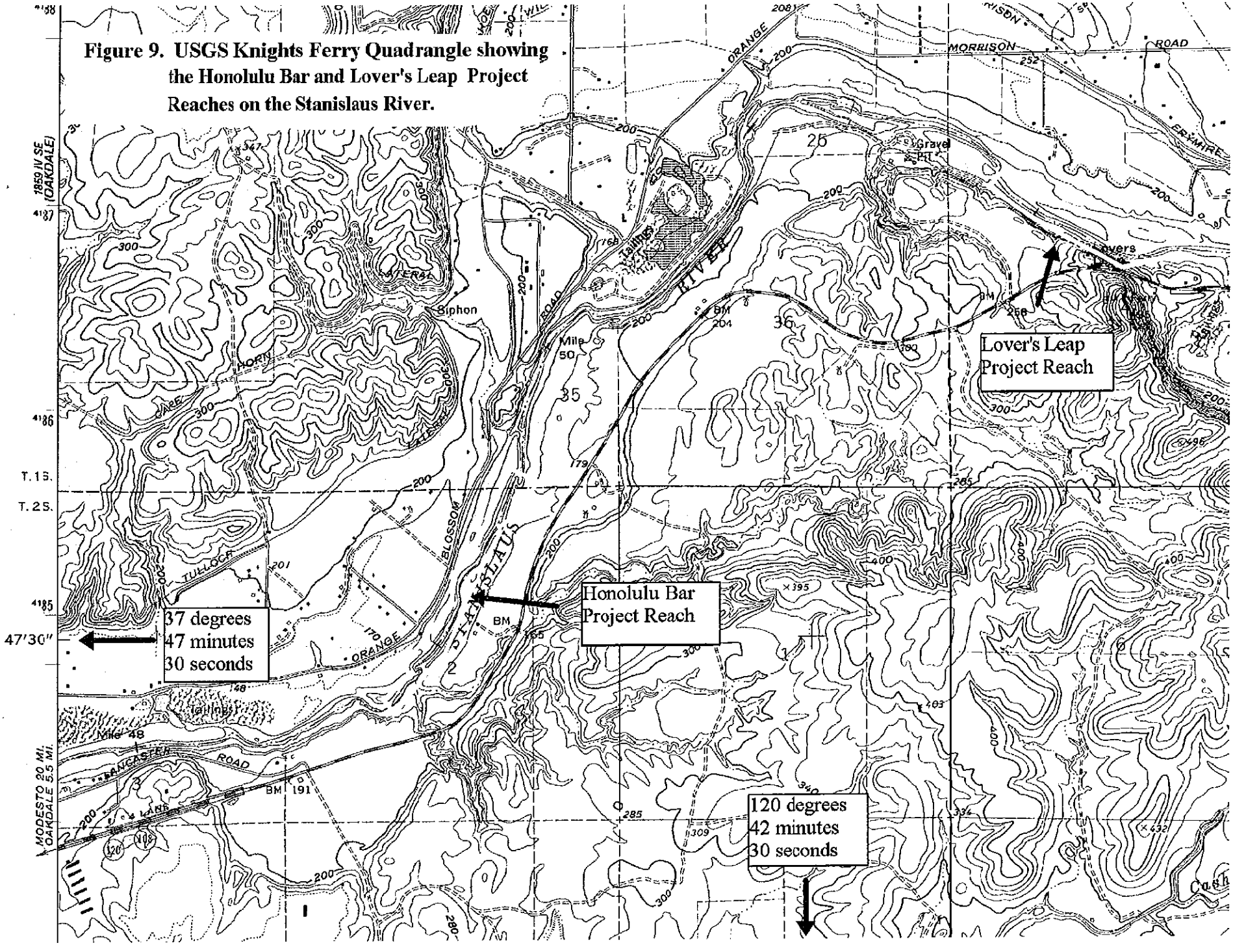

Figure 9. USGS Knights Ferry Quadrangle showing the Honolulu Bar and Lover's Leap Project Reaches on the Stanislaus River.

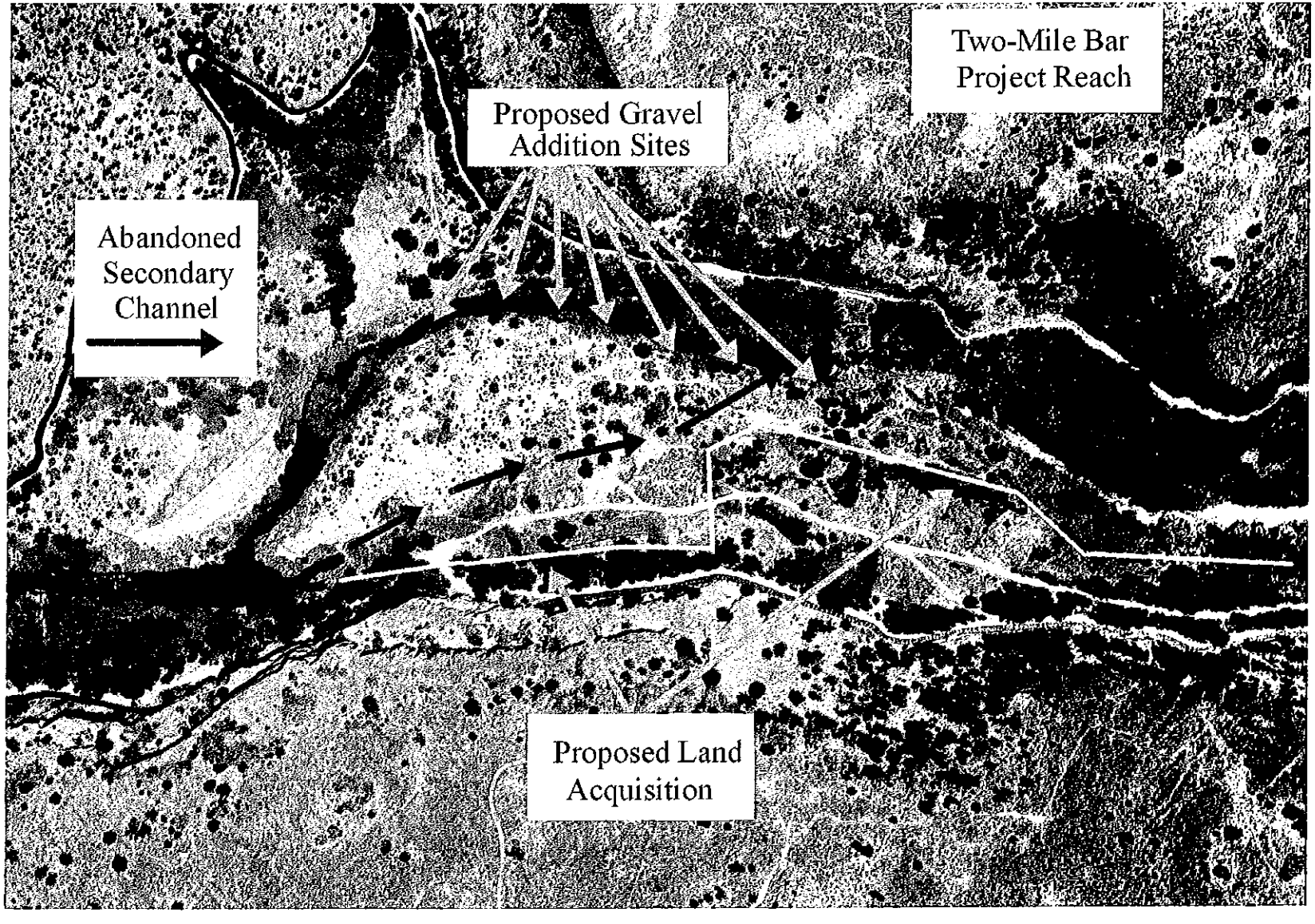

Figure 10. Aerial photo of the Two-Mile-Bar project reach taken in June 1993. Approximately 50 acres are proposed for acquisition. About 6,550 cubic yards of clean gravel would be placed at seven sites. The gravel would be scraped from the surface of the abandoned secondary channel.

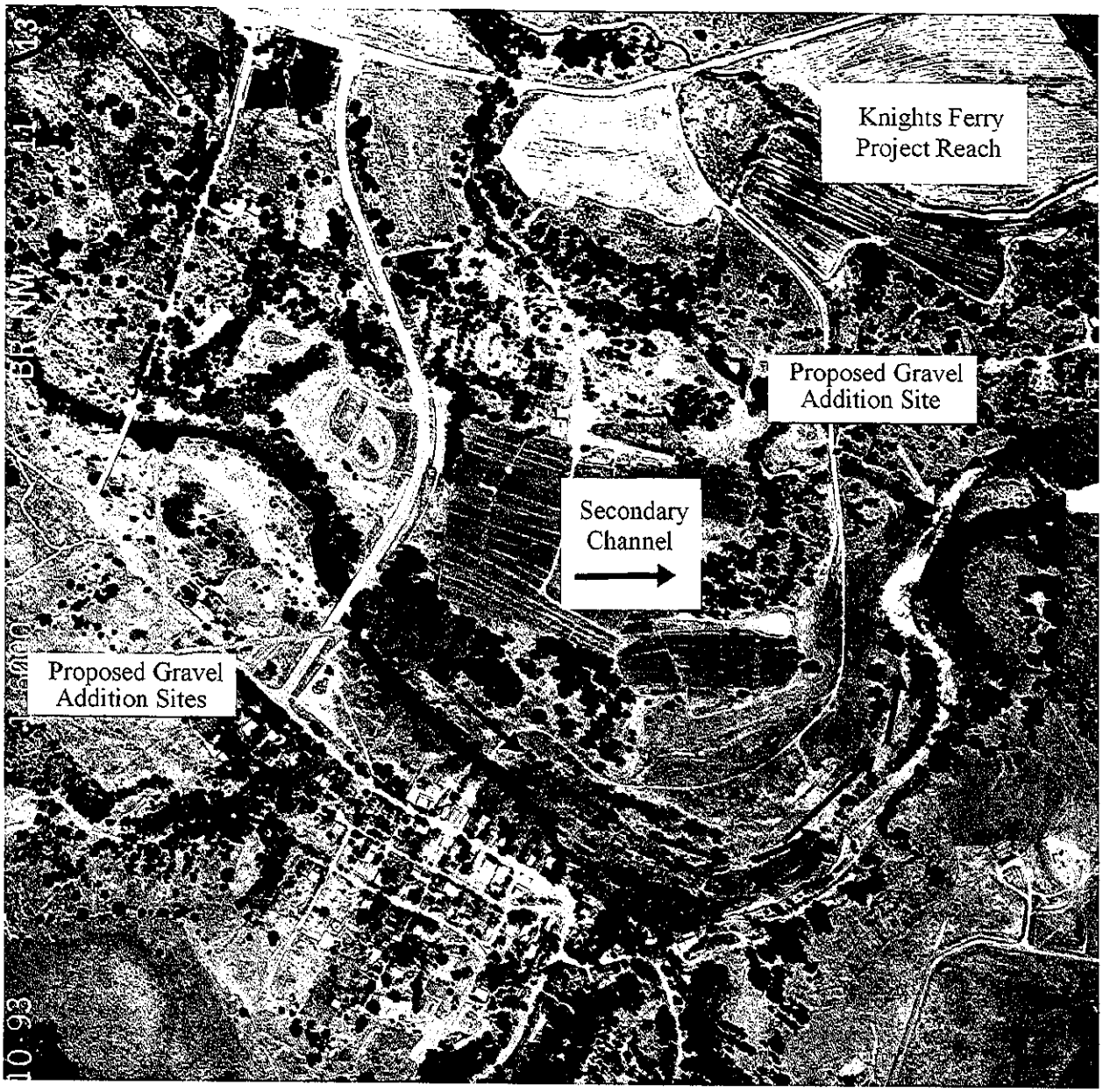

Figure 11. Aerial photo of the Knights Ferry project reach taken in June 1993. Approximately 2,000 cubic yards of clean gravel would be placed at three riffle sites and 1,333 cubic yards would used to fill a pit under the county bridge. The gravel would be scraped from the surface of the secondary channel and obtained from dredger tailings. Encroached vegetation and a natural berm would be removed from the upstream end of the secondary channel near the county bridge.

Figure 12. Aerial photo of the Six-Mile-Bar project reach taken in June 1993. About 9,375 cubic yards of clean gravel will be placed at five sites. The gravel would be obtained from dredger tailings on Six-Mile-Bar and the adjacent property. A gated, gravel road will be constructed on U.S. Army Corps of Engineers fee property through Six-Mile-Bar to the Lover's Leap project reach. The irrigated pastures will be improved where the dredger tailings are located as mitigation for the road construction.

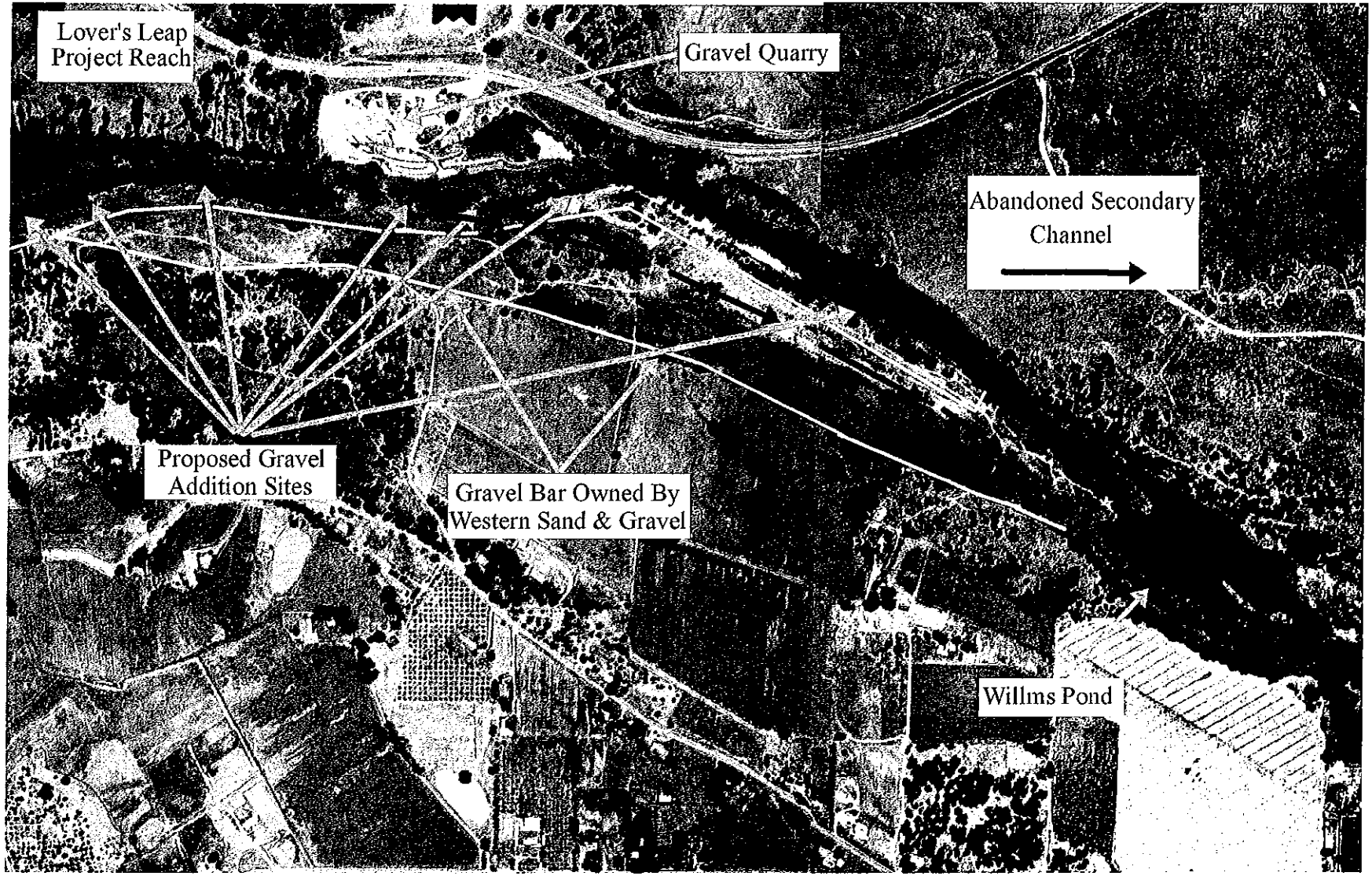

Figure 13. Aerial photo of the Lover's Leap project reach taken in June 1993. In 1996, the mature cottonwoods were removed from the private property where the gravel will be obtained. Approximately 6,554 cubic yards of clean gravel would be placed at six riffle sites and a pit near the quarry. The gravel would be scraped from the surface of the secondary channel.

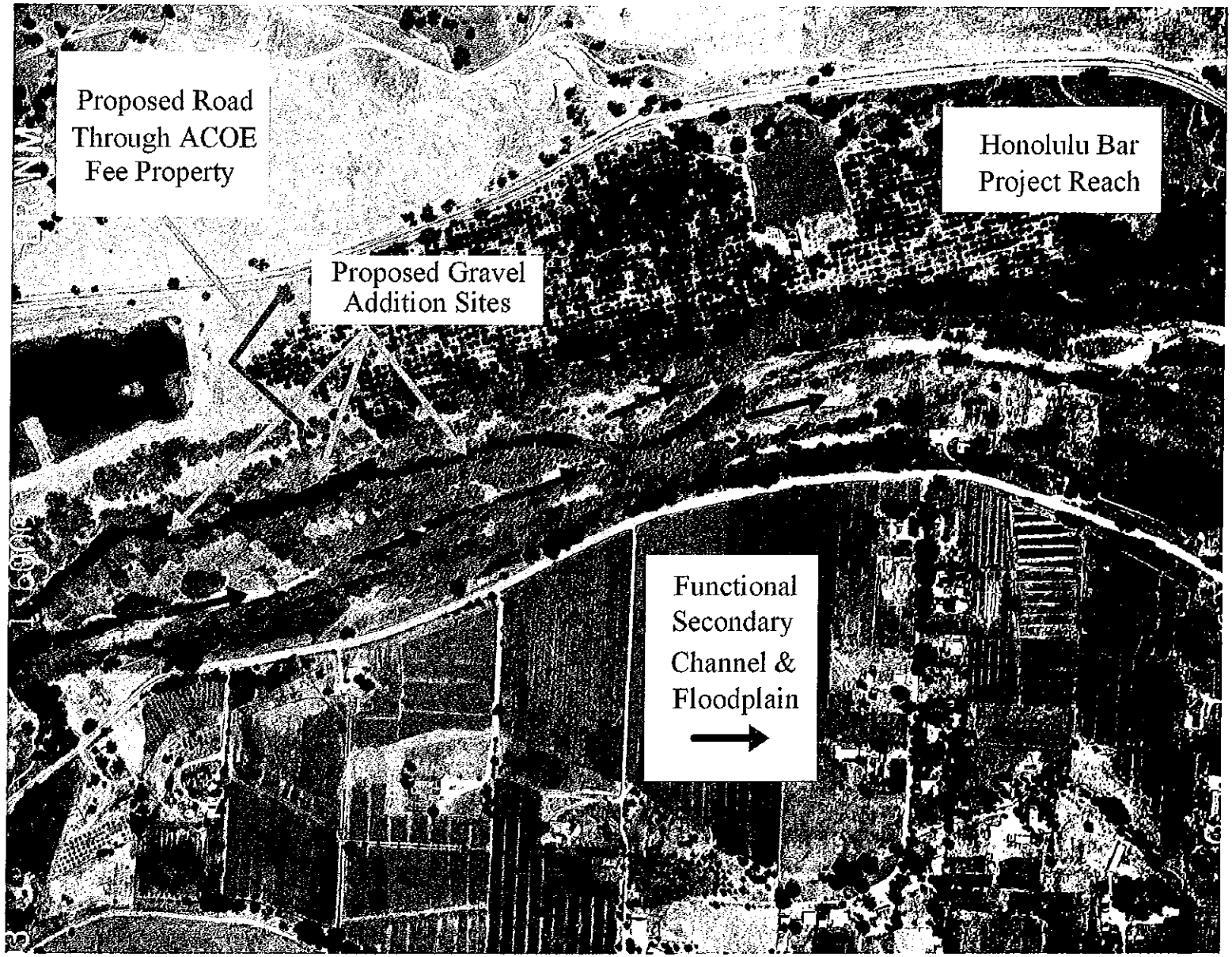

Figure 14. Aerial photo of the Honolulu Bar project reach taken in June 1993. About 1,271 cubic yards of clean gravel would be placed at three sites. The gravel would be obtain from dredger piles on U.S. Army Corps fee property. A gated, gravel road would be constructed on ACOE fee property from U.S. Highway 120 to the dredger piles.

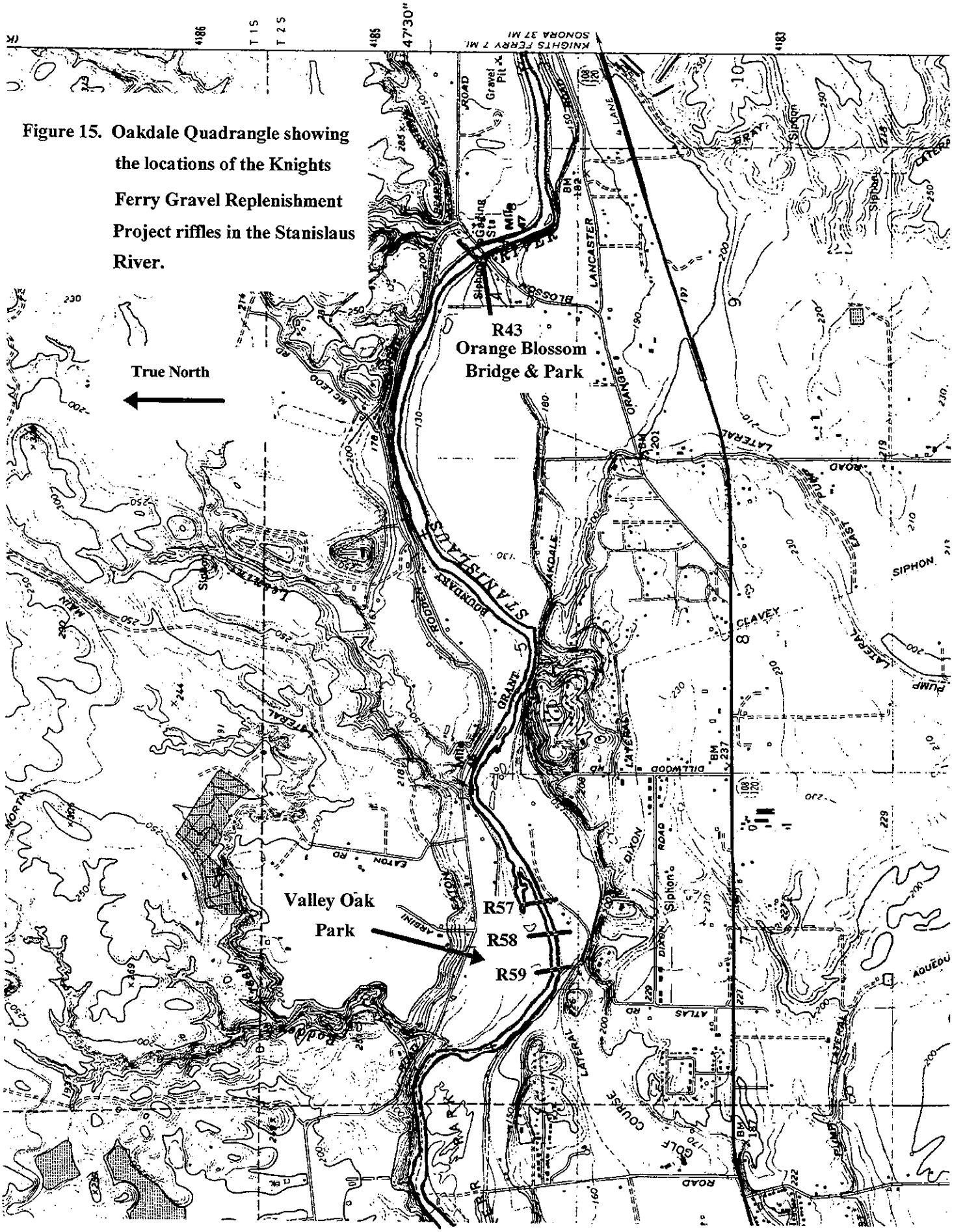

Figure 15. Oakdale Quadrangle showing the locations of the Knights Ferry Gravel Replenishment Project riffles in the Stanislaus River.

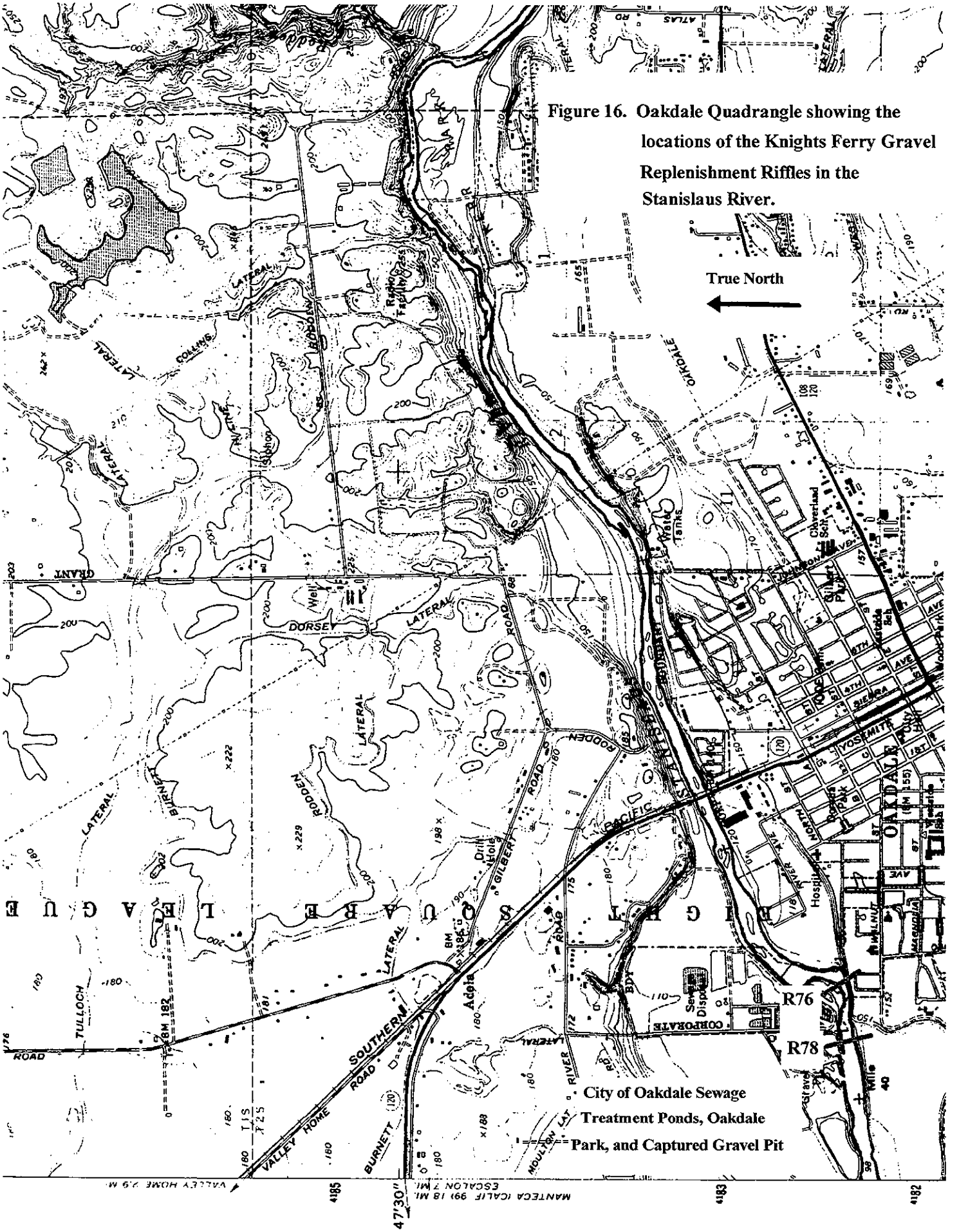

Figure 16. Oakdale Quadrangle showing the locations of the Knights Ferry Gravel Replenishment Riffles in the Stanislaus River.

Table 4. Total budget.								
			Subject to Overhead					
Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Task 1 Project Management Carl Mesick Consultants	CALFED or CVPIA	164	$10,660		$250			$10,910
Task 2a Two Mile Bar Appraisal The Trust For Public Land	CVPIA AFRP FY2000					$15,000	$15,000	
Task 2b Two Mile Bar Acquisition The Trust For Public Land	NFWF Pending					$50,000	$50,000	
Task 2c Two Mile Bar Acquisition The Trust For Public Land	CALFED or CVPIA					$200,000		$200,000
Task 3a-1 Restoration Planning: Two-Mile Bar The Trust For Public Land	CVPIA AFRP FY2000					$35,000	$35,000	
Task 3a-2 Restoration Planning: Two-Mile Bar Carl Mesick Consultants	NFWF Pending	145	$6,825	$509	$735	$25,620	$33,689	
Task 3b Restoration Planning: Knights Ferry Carl Mesick Consultants	CVPIA Section B(13)	83	$3,900	$292	$420	$46,180	$50,792	
Task 3c Restoration Planning: Six-Mile Bar Carl Mesick Consultants	CVPIA Section B(13)	102	$4,810	$363	$525	$13,080	$18,778	
Task 3d Restoration Planning: Lover's Leap Carl Mesick Consultants	CVPIA Section B(13)	145	$6,825	$509	$735	$6,580	$14,649	
Task 3e Restoration Planning: Honolulu Bar Carl Mesick Consultants	CVPIA Section B(13)	62	$2,925	$59	$315	$43,670	$46,969	
Task 4 Environmental Permitting Carl Mesick Consultants	CALFED or CVPIA	405	$21,250	$3,450	$10,515	$85,350		$120,565
Task 5a Gravel Addition & Grading: Two-Mile Bar Carl Mesick Consultants	CALFED or CVPIA	133	$6,345	$1,145	$40	$246,572		$254,102
Task 5b Gravel Addition & Grading: Knights Ferry Carl Mesick Consultants	CALFED or CVPIA	133	$6,345	$1,145	$40	$132,820		$140,350
Task 5c Gravel Addition, Grading, & Road: Six-Mile Bar Carl Mesick Consultants	CALFED or CVPIA	199	$9,435	$1,741	$40	$364,520		$375,736
Task 5d Gravel Addition & Grading: Lover's Leap Carl Mesick Consultants	CALFED or CVPIA	133	$6,345	$1,145	$40	$238,450		$245,980
Task 5e Gravel Addition, Grading, & Road: Honolulu Bar Carl Mesick Consultants	CALFED or CVPIA	79	$3,915	$607	$40	$61,060		$65,622
Task 5f Gravel Addition & Grading: Revegetation Carl Mesick Consultants	CALFED or CVPIA	380	$10,400	$2,550	$1,800	$8,000		$22,750

Table 4. Total budget (Continued).								
Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Task 6a Winter 2001- 2002 Fluvial Geomorphology, All Reaches	CALFED or CVPIA	56	$3,320	$215		$90,000		$93,535
Task 6b Winter 2002- 2003 Fluvial Geomorphology, All Reaches	CALFED or CVPIA	56	$3,320	$215		$90,000		$93,535
Task 7a Fall 2000 Salmon Spawning Habitat New project and control sites in all five reaches Carl Mesick Consultants	CVPIA Section B(13)	1284	$46,930	$7,160	$1,798		$55,888	
Task 7b-1 Fall 2001 Salmon Spawning Habitat Two-Mile Bar Carl Mesick Consultants	CALFED or CVPIA	550	$19,825	$3,149	$1,107			$24,081
Task 7b-2 Fall 2001 Salmon Spawning Habitat Knights Ferry Carl Mesick Consultants	CALFED or CVPIA	123	$4,420	$697	$245			$5,362
Task 7b-3 Fall 2001 Salmon Spawning Habitat Six-Mile Bar Carl Mesick Consultants	CALFED or CVPIA	305	$10,985	$1,747	$612			$13,344
Task 7b-4 Fall 2001 Salmon Spawning Habitat Lover's Leap Carl Mesick Consultants	CALFED or CVPIA	184	$6,630	$1,050	$370			$8,050
Task 7b-5 Fall 2001 Salmon Spawning Habitat Honolulu Bar Carl Mesick Consultants	CALFED or CVPIA	305	$10,985	$1,747	$612			$13,344
Task 7b-6 Fall 2001 Salmon Spawning Habitat 25 KFGRP Sites Carl Mesick Consultants	CALFED or CVPIA	1506	$55,445	$8,230	$2,525			$66,200
Task 7c-1 Fall 2002 Salmon Spawning Habitat Two-Mile Bar Carl Mesick Consultants	CALFED or CVPIA	550	$19,825	$3,149	$1,107			$24,081
Task 7c-2 Fall 2002 Salmon Spawning Habitat Knights Ferry Carl Mesick Consultants	CALFED or CVPIA	123	$4,420	$697	$245			$5,362
Task 7c-3 Fall 2002 Salmon Spawning Habitat Six-Mile Bar Carl Mesick Consultants	CALFED or CVPIA	305	$10,985	$1,747	$612			$13,344
Task 7c-4 Fall 2002 Salmon Spawning Habitat Lover's Leap Carl Mesick Consultants	CALFED or CVPIA	184	$6,630	$1,050	$370			$8,050

Table 4. Total budget (Continued).								
Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Task 7c-5 Fall 2002 Salmon Spawning Habitat Honolulu Bar Carl Mesick Consultants	CALFED or CVPIA	305	$10,985	$1,747	$612			$13,344
Task 7c-6 Fall 2002 Salmon Spawning Habitat 25 KFGRP Sites Carl Mesick Consultants	CALFED or CVPIA	1506	$55,445	$8,230	$2,525			$66,200
Task 8a-1 Winter 2001 Trout Spawning Habitat Two Mile Bar Carl Mesick Consultants	NFWF Pending	282	$10,270	$1,817	$132		$12,219	
Task 8a-2 Winter 2001 Trout Spawning Habitat Knights Ferry Carl Mesick Consultants	CVPIA Section B(13)	62	$2,275	$402	$29		$2,706	
Task 8a-3 Winter 2001 Trout Spawning Habitat Six-Mile Bar Carl Mesick Consultants	CVPIA Section B(13)	157	$5,720	$1,007	$72		$6,799	
Task 8a-4 Winter 2001 Trout Spawning Habitat Lover's Leap Carl Mesick Consultants	CALFED or CVPIA	93	$3,380	$606	$44			$4,030
Task 8a-5 Winter 2001 Trout Spawning Habitat Honolulu Bar Carl Mesick Consultants	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799
Task 8a-6 Winter 2001 Trout Spawning Habitat 25 KFGRP Sites Carl Mesick Consultants	CALFED or CVPIA	824	$30,030	$4,395	$583			$35,008
Task 8b-1 Winter 2002 Trout Spawning Habitat Two Mile Bar Carl Mesick Consultants	CALFED or CVPIA	282	$10,270	$1,817	$132			$12,219
Task 8b-2 Winter 2002 Trout Spawning Habitat Knights Ferry Carl Mesick Consultants	CALFED or CVPIA	62	$2,275	$402	$29			$2,706
Task 8b-3 Winter 2002 Trout Spawning Habitat Six-Mile Bar Carl Mesick Consultants	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799
Task 8b-4 Winter 2002 Trout Spawning Habitat Lover's Leap Carl Mesick Consultants	CALFED or CVPIA	93	$3,380	$606	$44			$4,030

Table 4. Total budget (Continued).								
Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED Total Cost
Task 8b-5 Winter 2002 Trout Spawning Habitat Honolulu Bar Carl Mesick Consultants	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799
Task 8b-6 Winter 2002 Trout Spawning Habitat 25 KFGRP Sites Carl Mesick Consultants	CALFED or CVPIA	824	$30,030	$4,395	$583			$35,008
Task 8c-1 Winter 2003 Trout Spawning Habitat Two Mile Bar Carl Mesick Consultants	CALFED or CVPIA	282	$10,270	$1,817	$132			$12,219
Task 8c-2 Winter 2003 Trout Spawning Habitat Knights Ferry Carl Mesick Consultants	CALFED or CVPIA	62	$2,275	$402	$29			$2,706
Task 8c-3 Winter 2003 Trout Spawning Habitat Six-Mile Bar Carl Mesick Consultants	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799
Task 8c-4 Winter 2003 Trout Spawning Habitat Lover's Leap Carl Mesick Consultants	CALFED or CVPIA	93	$3,380	$606	$44			$4,030
Task 8c-5 Winter 2003 Trout Spawning Habitat Honolulu Bar Carl Mesick Consultants	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799
Task 8c-6 Winter 2003 Trout Spawning Habitat 25 KFGRP Sites Carl Mesick Consultants	CALFED or CVPIA	824	$30,030	$4,395	$583			$35,008
Task 9a Spring 2001 Juvenile Rearing Habitat Carl Mesick Consultants & S.P. Cramer	CALFED or CVPIA	56	$3,320	$215		$44,700		$48,235
Task 9b Spring 2002 Juvenile Rearing Habitat Carl Mesick Consultants & S.P. Cramer	CALFED or CVPIA	56	$3,320	$215		$44,700		$48,235
Task 9c Spring 2003 Juvenile Rearing Habitat Carl Mesick Consultants & S.P. Cramer	CALFED or CVPIA	56	$3,320	$215		$44,700		$48,235
Task 10 Aquatic Invertebrates Carl Mesick Consultants	CALFED or CVPIA	728	$22,360	$765	$928	$5,000		$29,053
Task 11 Riparian Colonization Carl Mesick Consultants	CALFED or CVPIA	400	$10,000	$2,550		$10,000		$22,550
Contingency Budget (10% total)							$7,511	$226,111
Total Project Cost			$584,635	$86,007	$31,959	$1,901,002	$350,000	$2,487,225

Table 5. Annual Budget.

				Subject to Overhead					
Year	Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Year 1	Task 1 Project Management	Cost Share							
	Task 2a Two Mile Bar Appraisal	CVPIA AFRP FY2000					$15,000	$15,000	
	Task 2b Two Mile Bar Appraisal & Acquisition	NFWF Pending					$50,000	$50,000	
	Task 2c Two Mile Bar Appraisal & Acquisition	CALFED or CVPIA					$200,000		$200,000
	Task 3a-1 Restoration Planning: Two-Mile Bar	CVPIA AFRP FY2000					$35,000	$35,000	
	Task 3a-2 Restoration Planning: Two-Mile Bar	NFWF Pending	145	$6,825	$509	$735	$25,620	$33,689	
	Task 3b Restoration Planning: Knights Ferry	CVPIA Section b(13)	83	$3,900	$292	$420	$46,180	$50,792	
	Task 3c Restoration Planning: Six-Mile Bar	CVPIA Section b(13)	102	$4,810	$363	$525	$13,080	$18,778	
	Task 3d Restoration Planning: Lover's Leap	CVPIA Section b(13)	145	$6,825	$509	$735	$6,580	$14,649	
	Task 3e Restoration Planning: Honolulu Bar	CVPIA Section b(13)	62	$2,925	$59	$315	$43,670	$46,969	
	Task 4 Environmental Permitting	CALFED or CVPIA	250	$16,250	$1,725	$10,515	$71,850		$100,340
	Task 6a Winter 2001- 2002 Fluvial Geomorphology, All Reaches	CALFED or CVPIA	36	$2,020	$215		$45,000		$47,235
	Task 7a Fall 2000 Salmon Spawning Habitat 25 New Project Sites	CVPIA Section b(13)	1284	$46,930	$7,160	$1,798		$55,888	
	Task 7b-1 Fall 2001 Salmon Spawning Habitat Two-Mile Bar	CALFED or CVPIA	490	$15,925	$3,094	$1,021			$20,040
	Task 7b-2 Fall 2001 Salmon Spawning Habitat Knights Ferry	CALFED or CVPIA	110	$3,575	$685	$226			$4,486
	Task 7b-3 Fall 2001 Salmon Spawning Habitat Six-Mile Bar	CALFED or CVPIA	272	$8,840	$1,717	$565			$11,122

Year	Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
1	Task 7b-4 Fall 2001 Salmon Spawning Habitat Lover's Leap	CALFED or CVPIA	164	$5,330	$1,032	341			$6,703
	Task 7b-5 Fall 2001 Salmon Spawning Habitat Honolulu Bar	CALFED or CVPIA	272	$8,840	$1,717	$565			$11,122
	Task 7b-6 Fall 2001 Salmon Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	1306	$42,445	$8,150	$2,465			$53,060
	Task 8a-1 Winter 2001 Trout Spawning Habitat Two-Mile Bar	NFWF Pending	282	$10,270	$1,817	$132		$12,219	
	Task 8a-2 Winter 2001 Trout Spawning Habitat Knights Ferry	CVPIA Section b(13)	62	$2,275	$402	$29		$2,706	
	Task 8a-3 Winter 2001 Trout Spawning Habitat Six-Mile Bar	CVPIA Section b(13)	157	$5,720	$1,007	$72		$6,799	
	Task 8a-4 Winter 2001 Trout Spawning Habitat Lover's Leap	CALFED or CVPIA	93	$3,380	$606	$44			$4,030
	Task 8a-5 Winter 2001 Trout Spawning Habitat Honolulu Bar	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799
	Task 8a-6 Winter 2001 Trout Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	824	$30,030	$4,395	$583			$35,008
	Task 9a Spring 2001 Juvenile Rearing Habitat	CALFED or CVPIA	56	$3,320	$215		$44,700		$48,235
Total Cost Year 1				$236,155	$36,676	$21,158	$596,680	$342,489	$548,180

Year	Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Year 2	Task 1 Project Management								
	Task 4 Environmental Permitting	CALFED or CVPIA	155	$5,000	$1,725		$13,500		$20,225
	Task 5a Gravel Addition, Grading & Road Construction: Two-Mile Bar	CALFED or CVPIA	115	$5,175	$1,145	$20	$246,572		$252,912
	Task 5b Gravel Addition, Grading & Road Construction: Knights Ferry	CALFED or CVPIA	115	$5,175	$1,145	$20	$132,820		$139,160
	Task 5c Gravel Addition, Grading & Road Construction: Six-Mile Bar	CALFED or CVPIA	175	$7,875	$1,741	$20	$364,520		$374,156
	Task 5d Gravel Addition, Grading & Road Construction: Lover's Leap	CALFED or CVPIA	115	$5,175	$1,145	$20	$238,450		$244,790
	Task 5e Gravel Addition, Grading & Road Construction: Honolulu Bar	CALFED or CVPIA	61	$2,745	$607	$20	$61,060		$64,432
	Task 5f Revegetation: Two-Mile Bar, Knights Ferry, Six-Mile Bar, and Honolulu Bar	CALFED or CVPIA	300	$8,000	$2,550	$1,700	$7,500		$19,750
	Task 6a Winter 2001- 2002 Fluvial Geomorphology, All Reaches	CALFED or CVPIA	20	$1,300			$45,000		$46,300
	Task 6b Winter 2002- 2003 Fluvial Geomorphology, All Reaches	CALFED or CVPIA	36	$2,020	$215		$45,000		$47,235
	Task 7b-1 Fall 2001 Salmon Spawning Habitat Two-Mile Bar	CALFED or CVPIA	60	$3,900	$55	$86			$4,041
	Task 7b-2 Fall 2001 Salmon Spawning Habitat Knights Ferry	CALFED or CVPIA	13	$845	$12	$19			$876
	Task 7b-3 Fall 2001 Salmon Spawning Habitat Six-Mile Bar	CALFED or CVPIA	33	$2,145	$30	$47			$2,222
	Task 7b-4 Fall 2001 Salmon Spawning Habitat Lover's Leap	CALFED or CVPIA	20	$1,300	$18	$29			$1,347
	Task 7b-5 Fall 2001 Salmon Spawning Habitat Honolulu Bar	CALFED or CVPIA	33	$2,145	$30	$47			$2,222
	Task 7b-6 Fall 2001 Salmon Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	200	$13,000	$80	$60			$13,140
	Task 7c-1 Fall 2002 Salmon Spawning Habitat Two-Mile Bar	CALFED or CVPIA	490	$15,925	$3,094	$1,021			$20,040

Year	Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
2	Task 7c-2 Fall 2002 Salmon Spawning Habitat Knights Ferry	CALFED or CVPIA	110	$3,575	$685	$226			$4,486
	Task 7c-3 Fall 2002 Salmon Spawning Habitat Six-Mile Bar	CALFED or CVPIA	272	$8,840	$1,717	$565			$11,122
	Task 7c-4 Fall 2002 Salmon Spawning Habitat Lover's Leap	CALFED or CVPIA	164	$5,330	$1,032	341			$6,703
	Task 7c-5 Fall 2002 Salmon Spawning Habitat Honolulu Bar	CALFED or CVPIA	272	$8,840	$1,717	$565			$11,122
	Task 7c-6 Fall 2002 Salmon Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	1306	$42,445	$8,150	$2,465			$53,060
	Task 8b-1 Winter 2002 Trout Spawning Habitat Two-Mile Bar	CALFED or CVPIA	282	$10,270	$1,817	$132			$12,219
	Task 8b-2 Winter 2002 Trout Spawning Habitat Knights Ferry	CALFED or CVPIA	62	$2,275	$402	$29			$2,706
	Task 8b-3 Winter 2002 Trout Spawning Habitat Six-Mile Bar	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799
	Task 8b-4 Winter 2002 Trout Spawning Habitat Lover's Leap	CALFED or CVPIA	93	$3,380	$606	$44			$4,030
	Task 8b-5 Winter 2002 Trout Spawning Habitat Honolulu Bar	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799
	Task 8b-6 Winter 2002 Trout Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	824	$30,030	$4,395	$583			$35,008
	Task 9b Spring 2002 Juvenile Rearing Habitat	CALFED or CVPIA	56	$3,320	$215		$44,700		$48,235
Total Cost Year 2				$211,470	$36,342	$8,203	$1,199,122	$0	$1,455,137

Year	Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Year 3	Task 1 Project Management	CALFED or CVPIA	164	$10,660		$250			$10,910
	Task 5a Gravel Addition, Grading & Road Construction: Two-Mile Bar	CALFED or CVPIA	18	$1,170		$20			$1,190
	Task 5b Gravel Addition, Grading & Road Construction: Knights Ferry	CALFED or CVPIA	18	$1,170		$20			$1,190
	Task 5c Gravel Addition, Grading & Road Construction: Six-Mile Bar	CALFED or CVPIA	24	$1,560		$20			$1,580
	Task 5d Gravel Addition, Grading & Road Construction: Lover's Leap	CALFED or CVPIA	18	$1,170		$20			$1,190
	Task 5e Gravel Addition, Grading & Road Construction: Honolulu Bar	CALFED or CVPIA	18	$1,170		$20			$1,190
	Task 5f Revegetation: Two-Mile Bar, Knights Ferry, Six-Mile Bar, and Honolulu Bar	CALFED or CVPIA	80	$2,400		$100	$500		$3,000
	Task 6b Winter 2002- 2003 Fluvial Geomorphology, All Reaches	CALFED or CVPIA	20	$1,300			$45,000		$46,300
	Task 7c-1 Fall 2002 Salmon Spawning Habitat Two-Mile Bar	CALFED or CVPIA	60	$3,900	$55	$86			$4,041
	Task 7c-2 Fall 2002 Salmon Spawning Habitat Knights Ferry	CALFED or CVPIA	13	$845	$12	$19			$876
	Task 7c-3 Fall 2002 Salmon Spawning Habitat Six-Mile Bar	CALFED or CVPIA	33	$2,145	$30	$47			$2,222
	Task 7c-4 Fall 2002 Salmon Spawning Habitat Lover's Leap	CALFED or CVPIA	20	$1,300	$18	$29			$1,347
	Task 7c-5 Fall 2002 Salmon Spawning Habitat Honolulu Bar	CALFED or CVPIA	33	$2,145	$30	$47			$2,222
	Task 7c-6 Fall 2002 Salmon Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	200	$13,000	$80	$60			$13,140
	Task 8c-1 Winter 2003 Trout Spawning Habitat Two-Mile Bar	CALFED or CVPIA	282	$10,270	$1,817	$132			$12,219
	Task 8c-2 Winter 2003 Trout Spawning Habitat Knights Ferry	CALFED or CVPIA	62	$2,275	$402	$29			$2,706
	Task 8c-3 Winter 2003 Trout Spawning Habitat Six-Mile Bar	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799

Year	Task	Funding Source	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
3	Task 8c-4 Winter 2003 Trout Spawning Habitat Lover's Leap	CALFED or CVPIA	93	$3,380	$606	$44			$4,030
	Task 8c-5 Winter 2003 Trout Spawning Habitat Honolulu Bar	CALFED or CVPIA	157	$5,720	$1,007	$72			$6,799
	Task 8c-6 Winter 2003 Trout Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	824	$30,030	$4,395	$583			$35,008
	Task 9c Spring 2003 Juvenile Rearing Habitat	CALFED or CVPIA	56	$3,320	$215		$44,700		$48,235
	Task 10 Aquatic Invertebrates	CALFED or CVPIA	728	$22,360	$765	$928	$5,000		$29,053
	Task 11 Spring 2003 Riparian Colonization	CALFED or CVPIA	400	$10,000	$2,550		$10,000		$22,550
Total Cost Year 3			3478	$137,010	$12,989	$2,598	$105,200	$0	$257,797
	Contingency Budget (10% total)							$7,511	$226,111
Total Project Cost				$584,635	$86,007	$31,959	$1,901,002	$350,000	$2,487,225

Table 6. Budget details.

				Subject to Overhead					
Task Year 1	Funding Source	Personnel	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Task 1 Project Management	Cost Share								
Task 2a Two Mile Bar Appraisal	CVPIA AFRP FY2000						Appraiser $15,000	$15,000	
Task 2b Two Mile Bar Appraisal & Acquisition	NFWF Pending						Acquisition $50,000	$50,000	
Task 2c Two Mile Bar Appraisal & Acquisition	CALFED or CVPIA						Acquisition $200,000		$200,000
Task 3a-1 Restoration Planning: Two-Mile Bar	CVPIA AFRP FY2000						McBain and Trush $35,000	$35,000	
Task 3a-2 Restoration Planning: Two-Mile Bar	NFWF Pending	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist I @ $20/hr	65 40 40	$4,225 $1,800 $800	Lodging $227 Meals $188 Mileage $94	Total Station Usage $242 GPS Rental $404 Misc. $89	McBain and Trush $22,000 Hawkins & Assoc $3,620	$33,689	
Task 3b Restoration Planning: Knights Ferry	CVPIA Section b(13)	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist I @ $15/hr	37 23 23	$2,405 $1,035 $460	Lodging $130 Meals $108 Mileage $54	Total Station Usage $138 GPS Rental $231 Misc. $51	McBain and Trush $35,000 Hawkins & Assoc $11,180	$50,792	
Task 3c Restoration Planning: Six-Mile Bar	CVPIA Section b(13)	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist I @ $15/hr	46 28 28	$2,990 $1,260 $560	Lodging $162 Meals $134 Mileage $67	Total Station Usage $173 GPS Rental $288 Misc. $64	Hawkins & Assoc $13,080	$18,778	
Task 3d Restoration Planning: Lover's Leap	CVPIA Section b(13)	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist I @ $15/hr	65 40 40	$4,225 $1,800 $800	Lodging $227 Meals $188 Mileage $94	Total Station Usage $242 GPS Rental $404 Misc. $89	Hawkins & Assoc $6,580	$14,649	
Task 3e Restoration Planning: Honolulu Bar	CVPIA Section b(13)	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist I @ $15/hr	28 17 17	$1,820 $765 $340	Lodging $26 Meals $22 Mileage $11	Total Station Usage $104 GPS Rental $173 Misc. $38	McBain and Trush $35,000 Hawkins & Assoc $8,670	$46,969	
Task 4 Environmental Permitting	CALFED or CVPIA	Senior Biologist @ $65/hr	250	$16,250	Lodging $650 Meals $375 Mileage $700	DFG CEQA $3,000 USFWS NEPA $3,000 State Lands Comm. $1,775 Regional Water Quality $500 DFG Section 1600 $250 ACOE License $350 Encroachment Permit $700 County Grading Permits $900 Misc. $40	KDH Environmental $25,500 MBK Engineers $40,000 Hawkins & Assoc $3,600 EnviroRisk $2,750		$100,340
Task 6a Winter 2001- 2002 Fluvial Geomorphology, All Reaches		Senior Biologist @ $65/hr Supervising Biologist @ $45/hr	20 16	$1,300 $720	Lodging $65 Meals $50 Mileage $100		McBain and Trush $45,000		$47,235

Task Year 1	Funding Source	Personnel	Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED/CVPIA Total Cost
Task 7a Fall 2000 Salmon Spawning Habitat 25 New Project Sites	CVPIA Section b(13)	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	160 562 562	$10,400 $25,290 $11,240	Lodging $3,510 Meals $2,650 Mileage $1,000	Total Station Usage $1,320 D.O. Reagents $270 Misc. $208		$55,888	
Task 7b-1 Fall 2001 Salmon Spawning Habitat Two-Mile Bar	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	245 245	$11,025 $4,900	Lodging $1,511 Meals $1,163 Mileage $420	Total Station Usage $810 D.O. Reagents $113 Misc. $98			$20,040
Task 7b-2 Fall 2001 Salmon Spawning Habitat Knights Ferry	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	55 55	$2,475 $1,100	Lodging $335 Meals $257 Mileage $93	Total Station Usage $179 D.O. Reagents $25 Misc. $22			$4,486
Task 7b-3 Fall 2001 Salmon Spawning Habitat Six-Mile Bar	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	136 136	$6,120 $2,720	Lodging $838 Meals $645 Mileage $234	Total Station Usage $449 D.O. Reagents $62 Misc. $54			$11,122
Task 7b-4 Fall 2001 Salmon Spawning Habitat Lover's Leap	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	82 82	$3,690 $1,640	Lodging $504 Meals $388 Mileage $140	Total Station Usage $270 D.O. Reagents $38 Misc. $33			$6,703
Task 7b-5 Fall 2001 Salmon Spawning Habitat Honolulu Bar	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	136 136	$6,120 $2,720	Lodging $838 Meals $645 Mileage $234	Total Station Usage $449 D.O. Reagents $62 Misc. $54			$11,122
Task 7b-6 Fall 2001 Salmon Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	653 653	$29,385 $13,060	Lodging $3,510 Meals $3,100 Mileage $1,540	Total Station Usage $2,160 D.O. Reagents $270 Misc. $35			$53,060
Task 8a-1 Winter 2001 Trout Spawning Habitat Two-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	34 124 124	$2,210 $5,580 $2,480	Lodging $804 Meals $900 Mileage $113	Total Station Usage $113 Misc. $19		$12,219	
Task 8a-2 Winter 2001 Trout Spawning Habitat Knights Ferry	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	8 27 27	$520 $1,215 $540	Lodging $178 Meals $199 Mileage $25	Total Station Usage $25 Misc. $4		$2,706	
Task 8a-3 Winter 2001 Trout Spawning Habitat Six-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	19 69 69	$1,235 $3,105 $1,380	Lodging $446 Meals $499 Mileage $62	Total Station Usage $62 Misc. $10		$6,799	
Task 8a-4 Winter 2001 Trout Spawning Habitat Lover's Leap	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	11 41 41	$715 $1,845 $820	Lodging $268 Meals $300 Mileage $38	Total Station Usage $38 Misc. $6			$4,030
Task 8a-5 Winter 2001 Trout Spawning Habitat Honolulu Bar	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	19 69 69	$1,235 $3,105 $1,380	Lodging $446 Meals $499 Mileage $62	Total Station Usage $42 Misc. $10			$6,799
Task 8a-6 Winter 2001 Trout Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	100 362 362	$6,500 $16,290 $7,240	Lodging $1,625 Meals $1,650 Mileage $1,120	Total Station Usage $360 Misc. $223			$35,008
Task 9a Spring 2001 Juvenile Rearing Habitat	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr	40 16	$2,600 $720	Lodging $65 Meals $50 Mileage $100		S.P. Cramer $44,700		$48,235
Total Cost Year 1				$236,155	$36,676	$21,158	$596,680	$342,489	$548,180

Task Year 2	Funding Source	Personnel	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Task 1 Project Management	Cost Share								
Task 4 Environmental Permitting	CALFED or CVPIA	Senior Biologist @ $65/hr Botanist II @ $30/hr	10 145	$650 $4,350	Lodging $650 Meals $375 Mileage $700		KDH Environmental $13,500		$20,225
Task 5a Gravel Addition, Grading & Road Construction: Two-Mile Bar	CALFED or CVPIA	Supervising Biologist @ $45/hr	115	$5,175	Lodging $520 Meals $325 Mileage $300	Misc $20	General Contractor $234,600 Hawkins & Assoc $11,972		$252,912
Task 5b Gravel Addition, Grading & Road Construction: Knights Ferry	CALFED or CVPIA	Supervising Biologist @ $45/hr	115	$5,175	Lodging $520 Meals $325 Mileage $300	Misc $20	General Contractor $119,600 Hawkins & Assoc $13,220		$139,160
Task 5c Gravel Addition, Grading & Road Construction: Six-Mile Bar	CALFED or CVPIA	Supervising Biologist @ $45/hr	175	$7,875	Lodging $791 Meals $494 Mileage $456	Misc $20	General Contractor $350,000 Hawkins & Assoc $14,520		$374,156
Task 5d Gravel Addition, Grading & Road Construction: Lover's Leap	CALFED or CVPIA	Supervising Biologist @ $45/hr	115	$5,175	Lodging $520 Meals $325 Mileage $300	Misc $20	General Contractor $230,000 Hawkins & Assoc $8,450		$244,790
Task 5e Gravel Addition, Grading & Road Construction: Honolulu Bar	CALFED or CVPIA	Supervising Biologist @ $45/hr	61	$2,745	Lodging $276 Meals $172 Mileage $159	Misc $20	General Contractor $50,000 Hawkins & Assoc $11,060		$64,432
Task 5f Revegetation: Two-Mile Bar, Knights Ferry, Six-Mile Bar, and Honolulu Bar	CALFED or CVPIA	Botanist II @ $30/hr 200 Botanist I @ $20/hr	100	$6,000 $2,000	Lodging $1,300 Meals $750 Mileage $500	Plants and Materials $1,700	McBain and Trush $7,500		$19,750
Task 6a Winter 2001- 2002 Fluvial Geomorphology, All Reaches	CALFED or CVPIA	Senior Biologist @ $65/hr	20	$1,300			McBain and Trush $45,000		$46,300
Task 6b Winter 2002- 2003 Fluvial Geomorphology, All Reaches	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr	20 16	$1,300 $720	Lodging $65 Meals $50 Mileage $100		McBain and Trush $45,000		$47,235
Task 7b-1 Fall 2001 Salmon Spawning Habitat Two-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr	60	$3,900	Mileage $55	Misc. $86			$4,041
Task 7b-2 Fall 2001 Salmon Spawning Habitat Knights Ferry	CALFED or CVPIA	Senior Biologist @ $65/hr	13	$845	Mileage $12	Misc. $19			$876
Task 7b-3 Fall 2001 Salmon Spawning Habitat Six-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr	33	$2,145	Mileage $30	Misc. $47			$2,222
Task 7b-4 Fall 2001 Salmon Spawning Habitat Lover's Leap	CALFED or CVPIA	Senior Biologist @ $65/hr	20	$1,300	Mileage $18	Misc $29			$1,347
Task 7b-5 Fall 2001 Salmon Spawning Habitat Honolulu Bar	CALFED or CVPIA	Senior Biologist @ $65/hr	33	$2,145	Mileage $30	Misc $47			$2,222

Task Year 2	Funding Source	Personnel	Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED/CVPIA Total Cost
Task 7b-6 Fall 2001 Salmon Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	Senior Biologist @ $65/hr	200	$13,000	Mileage $80	Misc $60			$13,140
Task 7c-1 Fall 2002 Salmon Spawning Habitat Two-Mile Bar	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	245 245	$11,025 $4,900	Lodging $1,511 Meals $1,163 Mileage $420	Total Station Usage $810 D.O. Reagents $113 Misc. $98			$20,040
Task 7c-2 Fall 2002 Salmon Spawning Habitat Knights Ferry	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	55 55	$2,475 $1,100	Lodging $335 Meals $257 Mileage $93	Total Station Usage $179 D.O. Reagents $25 Misc. $22			$4,486
Task 7c-3 Fall 2002 Salmon Spawning Habitat Six-Mile Bar	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	136 136	$6,120 $2,720	Lodging $838 Meals $645 Mileage $234	Total Station Usage $449 D.O. Reagents $62 Misc. $54			$11,122
Task 7c-4 Fall 2002 Salmon Spawning Habitat Lover's Leap	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	82 82	$3,690 $1,640	Lodging $504 Meals $388 Mileage $140	Total Station Usage $270 D.O. Reagents $38 Misc. $33			$6,703
Task 7c-5 Fall 2002 Salmon Spawning Habitat Honolulu Bar	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	136 136	$6,120 $2,720	Lodging $838 Meals $645 Mileage $234	Total Station Usage $449 D.O. Reagents $62 Misc. $54			$11,122
Task 7c-6 Fall 2002 Salmon Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	653 653	$29,385 $13,060	Lodging $3,510 Meals $3,100 Mileage $1,540	Total Station Usage $2,160 D.O. Reagents $270 Misc. $35			$53,060
Task 8b-1 Winter 2002 Trout Spawning Habitat Two-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	34 124 124	$2,210 $5,580 $2,480	Lodging $804 Meals $900 Mileage $113	Total Station Usage $113 Misc. $19			$12,219
Task 8b-2 Winter 2002 Trout Spawning Habitat Knights Ferry	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	8 27 27	$520 $1,215 $540	Lodging $178 Meals $199 Mileage $25	Total Station Usage $25 Misc. $4			$2,706
Task 8b-3 Winter 2002 Trout Spawning Habitat Six-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	19 69 69	$1,235 $3,105 $1,380	Lodging $446 Meals $499 Mileage $62	Total Station Usage $62 Misc. $10			$6,799
Task 8b-4 Winter 2002 Trout Spawning Habitat Lover's Leap	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	11 41 41	$715 $1,845 $820	Lodging $268 Meals $300 Mileage $38	Total Station Usage $38 Misc. $6			$4,030
Task 8b-5 Winter 2002 Trout Spawning Habitat Honolulu Bar	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	19 69 69	$1,235 $3,105 $1,380	Lodging $446 Meals $499 Mileage $62	Total Station Usage $42 Misc. $10			$6,799
Task 8b-6 Winter 2002 Trout Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	100 362 362	$6,500 $16,290 $7,240	Lodging $1,625 Meals $1,650 Mileage $1,120	Total Station Usage $360 Misc. $223			$35,008
Task 9b Spring 2002 Juvenile Rearing Habitat	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr	40 16	$2,600 $720	Lodging $65 Meals $50 Mileage $100		S.P. Cramer $44,700		$48,235
Total Cost Year 2				$211,470	$36,342	$8,203	$1,199,122	$0	$1,455,137

Task Year 3	Funding Source	Personnel	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Task 1 Project Management	CALFED or CVPIA	Senior Manager @ $65/hr	164	$10,660		Misc $125			$10,910
Task 5a Gravel Addition, Grading & Road Construction:	CALFED or CVPIA	Senior Biologist @ $65/hr	18	$1,170		Misc $20			$1,190
Task 5b Gravel Addition, Grading & Road Construction:	CALFED or CVPIA	Senior Biologist @ $65/hr	18	$1,170		Misc $20			$1,190
Task 5c Gravel Addition, Grading & Road Construction:	CALFED or CVPIA	Senior Biologist @ $65/hr	24	$1,560		Misc $20			$1,580
Task 5d Gravel Addition, Grading & Road Construction:	CALFED or CVPIA	Senior Biologist @ $65/hr	18	$1,170		Misc $20			$1,190
Task 5e Gravel Addition, Grading & Road Construction:	CALFED or CVPIA	Senior Biologist @ $65/hr	18	$1,170		Misc $20			$1,190
Task 5f Revegetation: Two-Mile Bar, Knights Ferry, Six-Mile Bar, and Honolulu Bar	CALFED or CVPIA	Botanist II @ $30/hr	80	$2,400		$100	McBain and Trush $500		$3,000
Task 6b Winter 2002- 2003 Fluvial Geomorphology, All Reaches	CALFED or CVPIA	Senior Biologist @ $65/hr	20	$1,300			McBain and Trush $45,000		$46,300
Task 7c-1 Fall 2002 Salmon Spawning Habitat Two-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr	60	$3,900	Mileage $55	Misc. $86			$4,041
Task 7c-2 Fall 2002 Salmon Spawning Habitat Knights Ferry	CALFED or CVPIA	Senior Biologist @ $65/hr	13	$845	Mileage $12	Misc. $19			$876
Task 7c-3 Fall 2002 Salmon Spawning Habitat Six-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr	33	$2,145	Mileage $30	Misc. $47			$2,222
Task 7c-4 Fall 2002 Salmon Spawning Habitat Lover's Leap	CALFED or CVPIA	Senior Biologist @ $65/hr	20	$1,300	Mileage $18	Misc $29			$1,347
Task 7c-5 Fall 2002 Salmon Spawning Habitat Honolulu Bar	CALFED or CVPIA	Senior Biologist @ $65/hr	33	$2,145	Mileage $30	Misc $47			$2,222
Task 7c-6 Fall 2002 Salmon Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	Senior Biologist @ $65/hr	200	$13,000	Mileage $80	Misc $60			$13,140
Task 8c-1 Winter 2003 Trout Spawning Habitat Two-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	34 124 124	$2,210 $5,580 $2,480	Lodging $804 Meals $900 Mileage $113	Total Station Usage $113 Misc. $19			$12,219
Task 8c-2 Winter 2003 Trout Spawning Habitat Knights Ferry	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	8 27 27	$520 $1,215 $540	Lodging $178 Meals $199 Mileage $25	Total Station Usage $25 Misc. $4			$2,706

Task Year 3	Funding Source	Personnel	Direct Labor Hours	Salary	Travel	Supplies, Expendables & Permits	Service Contracts & Acquisition	Cost Share Total Cost	CALFED or CVPIA Total Cost
Task 8c-3 Winter 2003 Trout Spawning Habitat Six-Mile Bar	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	19 69 69	$1,235 $3,105 $1,380	Lodging $446 Meals $499 Mileage $62	Total Station Usage $62 Misc. $10			$6,799
Task 8c-4 Winter 2003 Trout Spawning Habitat Lover's Leap	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	11 41 41	$715 $1,845 $820	Lodging $268 Meals $300 Mileage $38	Total Station Usage $38 Misc. $6			$4,030
Task 8c-5 Winter 2003 Trout Spawning Habitat Honolulu Bar	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	19 69 69	$1,235 $3,105 $1,380	Lodging $446 Meals $499 Mileage $62	Total Station Usage $42 Misc. $10			$6,799
Task 8c-6 Winter 2003 Trout Spawning Habitat 25 KFGRP Sites	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist II @ $20/hr	100 362 362	$6,500 $16,290 $7,240	Lodging $1,625 Meals $1,650 Mileage $1,120	Total Station Usage $360 Misc. $223			$35,008
Task 9c Spring 2003 Juvenile Rearing Habitat	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr	40 16	$2,600 $720	Lodging $65 Meals $50 Mileage $100		S.P. Cramer $44,700		$48,235
Task 10 Aquatic Invertebrates	CALFED or CVPIA	Senior Biologist @ $65/hr Supervising Biologist @ $45/hr Fishery Biologist III @ $25/hr Fishery Biologist II @ $20/hr	80 64 520 64	$5,200 $2,880 $13,000 $1,280	Lodging $325 Meals $300 Mileage $140	Benthic Sampler $600 Misc. $328	McBain and Trush $5,000		$29,053
Task 11 Spring 2003 Riparian Colonization	CALFED or CVPIA	Botanist II @ $30/hr Botanist I @ $20/hr	200 200	$6,000 $4,000	Lodging $1,300 Meals $750 Mileage $500		McBain and Trush $10,000		$22,550
Total Cost Year 3				$137,010	$12,989	$2,598	$105,200	$0	$257,797
Contingency Budget (10% total)								$7,511	$226,111
Total Project Cost				$584,635	$86,007	$31,959	$1,901,002	$350,000	$2,487,225

THRESHOLD REQUIREMENTS

Copies of Local Notification Letters

Environmental Compliance Checklist

Land Use Check List

State and Federal Contract Forms

Permission Letters for Access

Environmental Compliance Checklist

All applicants must fill out this Environmental Compliance Checklist. Applications must contain answers to the following questions to be responsive and to be considered for funding. *Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.*

1. Do any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both?

   Assuming that state funds are awarded, then both CEQA and NEPA will be required.

2. If you answered yes to #1, identify the lead governmental agency for CEQA/NEPA compliance.

   If state funds are awarded, then the Department of Fish and Game, Region 4, will be the lead agency for CEQA. If the CVPIA Anadromous Fish Restoration Program provides additional funding then the U.S. Fish and Wildlife Service (USFWS) will be the lead agency for NEPA compliance. If other federal funds are provided, then the lead agency for NEPA could be either the USFWS or the U.S. Bureau of Reclamation.

3. If you answered no to #1, explain why CEQA/NEPA compliance is not required for the actions in the proposal.

   N/A

4. If CEQA/NEPA compliance is required, describe how the project will comply with either both of these laws. Describe where the project is in the compliance process and the expected date of completion

   An EA that tiers from the CVPIA PEIS, which should be finalized in summer 2000, would be used to address the NEPA compliance for gravel addition, land acquision, county grading permits, and state encroachment permits for road access. The USFWS requires an EIS for restoration projects that benefit either the habitat or the species. A Negative Declaration and Initial Study should address CEQA compliance for gravel addition, land acquisition, county grading permits, and state encroachment permits for road access.

5. Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?

   Yes

   If yes, the applicant must attach written permission for access from the relevant property owners. Failure to include written permission for access may result in disqualification of the proposal during the review process. Research and monitoring field projects for which specific field locations have not been identified will be required to provide access needs and permission for access within 30 days of notification of approval.

   Attached are letters of cooperation from Mr. Jim Mangante for the Two-Mile Bar Reach, Mr. Mark Hunter for the Knights Ferry Reach, Ms. Nancy Frymire for the Six-Mile Bar Reach, Mr. Gordon Crawford for the Lover's Leap Reach, and the U.S. Army Corps of Engineers for their properties.

6. Please indicate what permits or other approvals may be required for the activities contained in your proposal.

   The following permits will be required for the activities contained in this proposal.

   LOCAL

   Grading Permit

   STATE

   CESA Compliance (California Department of Fish and Game)
   Streambed alteration (California Department of Fish and Game)
   CWA & 401 Certification (Regional Water Quality Control Board)
   Reclamation Board approval
   Encroachment Permit for road access (CALTRANS)
   General Lease (California State Lands Commission)

   FEDERAL

   ESA Consultation (National Marine Fisheries Service and the U.S. Fish and Wildlife Service)
   CWA & 404 permit (U.S. Army Corps of Engineers)

Land Use Checklist

All applicants must fill out this Land Use Checklist for their proposal. Applications must contain answers to the following questions to be responsive and to be considered for funding. *Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.*

1. Do the actions in the proposal involve physical changes to the land (i.e., grading, planting vegetation, or breeching levees) or restrictions in land use (i.e., conservation easement or placement of land in a wildlife refuge)?

   Yes. The proposal involves both physical changes to the land and restrictions in land use.

2. If NO to #1, explain what type of actions are involved in the proposal (i.e., research only, planning only).

   Does not apply.

3. If YES to #1, what is the proposed land use change or restriction under the proposal?

   The proposed physical changes to the land include (1) grading or the removal of dredger tailings adjacent to the river; (2) the development of gravel roads to the U.S. Army Corps Fee Property at Six-Mile Bar and Honolulu Bar; (3) grading to improve pasture at Ms. Nancy Frymire's property near Six-Mile Bar as mitigation for the ACOE road; (4) the placement of 27,083 cubic yards of clean spawning gravel obtained from dredger tailings at 24 sites in the Stanislaus River; and (5) planting native species of vegetation in graded areas at Two-Mile Bar, Six-Mile Bar, Knights Ferry, and Honolulu Bar. The proposed restrictions in land use includes the acquisition of 50 acres of floodplain habitat and gravel reserves at Two-Mile with the fee title being transferred to the U.S. Army Corps of Engineers. The U.S. Army Corps of Engineers can permit grazing to continue and will allow the harvest of surface gravels for river restoration.

4. If YES to #1, is the land currently under a Williamson Act contract?

   The Two-Mile Bar property is subject to a Williamson Act contract according to the county assessor's office.

5. If YES to #1, answer the following:

   Current land use: The U.S. Army Corps of Engineers (ACOE) has condemned the Two-Mile Bar property for a flood and restoration easement. The easement permits grazing and the landowner has retained the mineral rights.
   Current zoning and general plan designations: Two-Mile Bar is zoned Agricultural Preserve, 50 acre minimum. According to the Calaveras Co. Planning Department, this designation does not permit gravel extraction without a change to the county's general plan.

6. If YES to #1, is the land classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps?

   None of the reaches are classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps according to the landowners.

7. If YES to #1, how many acres of land will be subject to physical change or land use restrictions under the proposal?

   Approximately 50 acres at Two-Mile Bar, two acres at Knights Ferry, three acres at Six-Mile Bar, five acres at Lover's Leap, and two acres at Honolulu Bar.

8. If YES to #1, is the property currently being commercially farmed or grazed?

   Yes, Two-Mile Bar, Six-Mile Bar, and Lover's Leap properties are currently being grazed.

9. If YES to #8, what are the number of employees/acre: one per 50 acres at Two-Mile Bar and one per 27 acres at Lover's Leap. Ms. Frymire tends her own cattle at Six-Mile Bar. What is the total number of employees: two.

10. Will the applicant acquire any interest in land under the proposal (fee title or a conservation easement)?

    No.

11. What entity/organization will hold the interest? U.S. Army Corps of Engineers.

12. If YES to #10, answer the following: Does not apply.

13. For all proposals involving physical changes to the land or restriction in land use, describe what entity or organization will:

    manage the property: U.S. Army Corps of Engineers
    provide operations and maintenance services: U.S. Army Corps of Engineers
    conduct monitoring: Carl Mesick Consultants for the duration of the CALFED contract

14. For land acquisitions (fee title or easements), will existing water rights also be acquired? Yes. The Two-Mile Bar property has riparian water rights from Oakdale Irrigation District to provide sufficient irrigation for 10 acres for agricultural uses. The volume of water is unspecified.

15. Does the applicant propose any modifications to the water right or change in the delivery of the water? No.

16. If YES to #15, describe. No modifications

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95)

Carl Mesick Consultants

COMPANY NAME

The company named above (herinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME
Carl Mesick

DATE EXECUTED	EXECUTED IN THE COUNTY OF
May 14, 2000	El Dorado

PROSPECTIVE CONTRACTOR'S SIGNATURE
Carl Mesick

PROSPECTIVE CONTRACTOR'S TITLE
Owner

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME
Carl Mesick Consultants

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) FMC

COMPANY NAME

The Trust for Public Land

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

TILY SHUE

DATE EXECUTED

5/11/00

EXECUTED IN THE COUNTY OF

SAN FRANCISCO

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

REGIONAL COUNSEL

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

THE TRUST FOR PUBLIC LAND

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95)

COMPANY NAME

HAWKINS + ASSOCIATES ENGINEERING

The company named above (herinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

ROD HAWKINS

DATE EXECUTED

5/12/00

EXECUTED IN THE COUNTY OF

STANISLAUS

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

OWNER

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

ROD HAWKINS D.B.A. HAWKINS + ASSOCIATES ENGINEERING

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95)

COMPANY NAME

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME
Scott McBain

DATE EXECUTED
9/12/00

EXECUTED IN THE COUNTY OF
Humboldt

PROSPECTIVE CONTRACTOR'S SIGNATURE
Scott McBain

PROSPECTIVE CONTRACTOR'S TITLE
Partner

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME
McBain and Trush

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95)

COMPANY NAME: EnviroRisk, Inc.

The company named above (herinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME: Amy J. Hoffman

DATE EXECUTED: 5/12/00

EXECUTED IN THE COUNTY OF: El Dorado

PROSPECTIVE CONTRACTOR'S SIGNATURE: Amy J. Hoff

PROSPECTIVE CONTRACTOR'S TITLE: President

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME: EnviroRisk, Inc.

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95)

COMPANY NAME

S.P Cramer & Associates

The company named above (herinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

Steven Cramer

DATE EXECUTED

5/8/00

EXECUTED IN THE COUNTY OF

Multnomah

PROSPECTIVE CONTRACTOR'S SIGNATURE

S P Cramer

PROSPECTIVE CONTRACTOR'S TITLE

President S P Cramer & Associates

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

S.P. Cramer & Associates Inc

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95)

MBK Engineers

COMPANY NAME

The company named above (herinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

Gilbert Cosio, Jr.

DATE EXECUTED	EXECUTED IN THE COUNTY OF
05/05/00	Sacramento

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

Vice President

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

MBK Engineers

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95)

COMPANY NAME

KDH Environmental Services

The company named above (herinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

Dennis J. Hood

DATE EXECUTED

May 10, 2000

EXECUTED IN THE COUNTY OF

Calaveras

PROSPECTIVE CONTRACTOR'S SIGNATURE

Dennis J. Hood

PROSPECTIVE CONTRACTOR'S TITLE

Owner / Operator

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

KDH Environmental Services

APPLICATION FOR FEDERAL ASSISTANCE

OMB Approval No. 0348-0043

2. DATE SUBMITTED	Applicant Identifier
May 15, 2000	
3. DATE RECEIVED BY STATE	State Application Identifier
4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier

1. TYPE OF SUBMISSION:

Application: [X] Construction [ ] Non-Construction
Preapplication: [ ] Construction [ ] Non-Construction

5. APPLICANT INFORMATION

Legal Name: Carl Mesick Consultants

Organizational Unit:

Address *(give city, county, State, and zip code)*:
7981 Crystal Boulevard
El Dorado, California 95623

Name and telephone number of person to be contacted on matters involving this application *(give area code)*:
Carl Mesick, phone (530) 620-3631

6. EMPLOYER IDENTIFICATION NUMBER *(EIN)*:
6 8 – 0 3 8 3 1 6 7

7. TYPE OF APPLICANT: *(enter appropriate letter in box)* [N]

A. State
B. County
C. Municipal
D. Township
E. Interstate
F. Intermunicipal
G. Special District
H. Independent School Dist.
I. State Controlled Institution of Higher Learning
J. Private University
K. Indian Tribe
L. Individual
M. Profit Organization
N. Other (Specify) Profit & Non Profit Org

8. TYPE OF APPLICATION:

[X] New [ ] Continuation [ ] Revision

If Revision, enter appropriate letter(s) in box(es) [ ] [ ]

A. Increase Award B. Decrease Award C. Increase Duration
D. Decrease Duration Other *(specify)*:

9. NAME OF FEDERAL AGENCY:

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER:
X X – X X X

TITLE:

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:
Spawning Habitat and Floodplain Restoration in the Stanislaus River, Phase 1.

12. AREAS AFFECTED BY PROJECT *(Cities, Counties, States, etc.)*:
Stanislaus, Tuolumne, & Calaveras Counties, California

13. PROPOSED PROJECT

Start Date: 1/2001
Ending Date: 3/2004

14. CONGRESSIONAL DISTRICTS OF:

a. Applicant: District # 4
b. Project: Districts # 4 and 18

15. ESTIMATED FUNDING:

a. Federal	$ .00
b. Applicant	$ .00
c. State	$ .00
d. Local	$ .00
e. Other	$ .00
f. Program Income	$ .00
g. TOTAL	$ $2,487,225.00

16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?

a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON:

DATE _____

b. No. [ ] PROGRAM IS NOT COVERED BY E. O. 12372
[ ] OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW

17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?

[ ] Yes If "Yes," attach an explanation. [X] No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Type Name of Authorized Representative	b. Title	c. Telephone Number
Carl Mesick	Owner	(530) 620-3631
d. Signature of Authorized Representative		**e. Date Signed**
Carl Mesick		May 14, 2000

Previous Edition Usable
Authorized for Local Reproduction

Standard Form 424 (Rev. 7-97)
Prescribed by OMB Circular A-102

CARL MESICK CONSULTANTS
FISHERY RESOURCE ASSESSMENTS
7981 Crystal Boulevard • El Dorado, CA 95623
Phone/Fax: (530) 620-3631
Email: cmcfish@innercite.com

May 15, 2000

Ms. Mary Jane Giuffra, Clerk
Calaveras County Board of Supervisors
891 Mountain Ranch Road
San Andreas, California 95249-9709

Dear Ms. Guiffra,

As a requirement of the CALFED Bay-Delta Program (CALFED), I have enclosed a copy of a proposal that Carl Mesick Consultants and the Trust for Public Land are submitting to CALFED today to implement a restoration project on the Stanislaus River between Two-Mile Bar, which is near rivermile 57, to Honolulu Bar, which is near rivermile 49.5. The Two-Mile Bar site is the only portion of the project that is in Calaveras County. Carl Mesick Consultants is a small firm specializing in fishery studies and river restoration since 1992. Our staff have been working on the Stanislaus River since 1994 and implemented another river restoration project called "The Knights Ferry Gravel Replenishment Project" on the Stanislaus River for CALFED in 1999. The Trust for Public Land is a national nonprofit conservation organization with over 26 years of experience in acquiring critical land and water resources from willing sellers for habitat and ecosystem restoration and open space preservation.

Our proposal is for Phase 1 of a spawning and floodplain restoration project at five reaches in the project area. Our objectives are twofold: the first is to increase the amount of gravel in the river to improve spawning habitat for fall-run chinook salmon and steelhead/rainbow trout; and the second is to restore floodplain function to reduce the rate that gravel is transported and to provide rearing habitat for juvenile salmon and trout during high flows. We intend to achieve these objectives by removing gravel on heavily disturbed gravel bars and dredger tailings that are perched above the river, and then cleaning and placing that gravel into the river adjacent to the gravel bars to provide spawning habitat. We also propose to acquire the 50-acre Two-Mile Bar property from a willing seller to provide a source of gravel and access for restoration in a critical reach for fish. If CALFED funds the entire project, then about 27,083 cubic yards of gravel will be removed, cleaned and sorted, and placed at 24 sites in the five reaches. The gravel will be obtained from U.S. Army Corps of Engineers (ACOE) fee property and through purchases from several private landowners. As the gravel will be processed on site and placed in the adjacent riverbed, there will be minimal impacts to county roads or traffic. This proposal was developed with the full knowledge of the Department of Fish and Game, U.S. Fish and Wildlife Service (USFWS), and the local irrigation and water districts. The USFWS has indicated that they will fund a portion of this project.

If you have any questions, please do not hesitate to call me. Thank you.

Sincerely,

Carl Mesick

Carl Mesick, Ph.D.
Fishery Biologist

enclosure

CARL MESICK CONSULTANTS
FISHERY RESOURCE ASSESSMENTS
7981 Crystal Boulevard • El Dorado, CA 95623
Phone/Fax: (530) 620-3631
Email: cmcfish@innercite.com

May 15, 2000

Mr. Ray Wallace, Director
Calaveras County Community Development
891 Mountain Ranch Road
San Andreas, California 95249-9709

Dear Mr. Wallace,

As a requirement of the CALFED Bay-Delta Program (CALFED), I have enclosed a copy of a proposal that Carl Mesick Consultants and the Trust for Public Land are submitting to CALFED today to implement a restoration project on the Stanislaus River between Two-Mile Bar, which is near rivermile 57, to Honolulu Bar, which is near rivermile 49.5. The Two-Mile Bar site is the only portion of the project that is in Calaveras County. Carl Mesick Consultants is a small firm specializing in fishery studies and river restoration since 1992. Our staff have been working on the Stanislaus River since 1994 and implemented another river restoration project called "The Knights Ferry Gravel Replenishment Project" on the Stanislaus River for CALFED in 1999. The Trust for Public Land is a national nonprofit conservation organization with over 26 years of experience in acquiring critical land and water resources from willing sellers for habitat and ecosystem restoration and open space preservation.

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If you have any questions, please do not hesitate to call me. Thank you.

Sincerely,

Carl Mesick

Carl Mesick, Ph.D.
Fishery Biologist

enclosure

CARL MESICK CONSULTANTS
FISHERY RESOURCE ASSESSMENTS
7981 Crystal Boulevard • El Dorado, CA 95623
Phone/Fax: (530) 620-3631
Email: cmcfish@innercite.com

May 15, 2000

Christine Ferraro Tallman, Clerk
Stanislaus County Board of Supervisors
1010 10th Street, Suite 6500
Modesto, California 95354

Dear Ms. Ferraro Tallman,

As a requirement of the CALFED Bay-Delta Program (CALFED), I have enclosed a copy of a proposal that Carl Mesick Consultants and the Trust for Public Land are submitting to CALFED today to implement a restoration project on the Stanislaus River between Two-Mile Bar, which is near rivermile 57, to Honolulu Bar, which is near rivermile 49.5. Carl Mesick Consultants is a small firm specializing in fishery studies and river restoration since 1992. Our staff have been working on the Stanislaus River since 1994 and implemented another river restoration project called "The Knights Ferry Gravel Replenishment Project" on the Stanislaus River for CALFED in 1999. The Trust for Public Land is a national nonprofit conservation organization with over 26 years of experience in acquiring critical land and water resources from willing sellers for habitat and ecosystem restoration and open space preservation.

Our proposal is for Phase 1 of a spawning and floodplain restoration project at five reaches in the project area. Our objectives are twofold: the first is to increase the amount of gravel in the river to improve spawning habitat for fall-run chinook salmon and steelhead/rainbow trout; and the second is to restore floodplain function to reduce the rate that gravel is transported and to provide rearing habitat for juvenile salmon and trout during high flows. We intend to achieve these objectives by removing gravel on heavily disturbed gravel bars and dredger tailings that are perched above the river, and then cleaning and placing that gravel into the river adjacent to the gravel bars to provide spawning habitat. We also propose to acquire the 50-acre Two-Mile Bar property from a willing seller to provide a source of gravel and access for restoration in a critical reach for fish. If CALFED funds the entire project, then about 27,083 cubic yards of gravel will be removed, cleaned and sorted, and placed at 24 sites in the five reaches. The gravel will be obtained from U.S. Army Corps of Engineers (ACOE) fee property and through purchases from several private landowners. As the gravel will be processed on site and placed in the adjacent riverbed, there will be minimal impacts to county roads or traffic. We are also proposing to construct two roads on ACOE fee property to provide access for restoration. If funded, we will be applying for grading permits for the work conducted on private property in addition to the other required state and federal permits. This proposal was developed with the full knowledge of the Department of Fish and Game, U.S. Fish and Wildlife Service (USFWS), and the local irrigation and water districts. The USFWS has indicated that they will fund a portion of this project.

If you have any questions, please do not hesitate to call me. Thank you.

Sincerely,

Carl Mesick

Carl Mesick, Ph.D.
Fishery Biologist

enclosure

CARL MESICK CONSULTANTS
FISHERY RESOURCE ASSESSMENTS
7981 Crystal Boulevard • El Dorado, CA 95623
Phone/Fax: (530) 620-3631
Email: cmcfish@innercite.com

May 15, 2000

Mr. Kirk Ford
Stanislaus County Planning and Community Development
1010 10th Street, Suite 3400
Modesto, California 95354

Dear Mr. Ford,

As a requirement of the CALFED Bay-Delta Program (CALFED), I have enclosed a copy of a proposal that Carl Mesick Consultants and the Trust for Public Land are submitting to CALFED today to implement a restoration project on the Stanislaus River between Two-Mile Bar, which is near rivermile 57, to Honolulu Bar, which is near rivermile 49.5. Carl Mesick Consultants is a small firm specializing in fishery studies and river restoration since 1992. Our staff have been working on the Stanislaus River since 1994 and implemented another river restoration project called "The Knights Ferry Gravel Replenishment Project" on the Stanislaus River for CALFED in 1999. The Trust for Public Land is a national nonprofit conservation organization with over 26 years of experience in acquiring critical land and water resources from willing sellers for habitat and ecosystem restoration and open space preservation.

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If you have any questions, please do not hesitate to call me. Thank you.

Sincerely,

Carl Mesick, Ph.D.
Fishery Biologist

enclosure

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FISHERY RESOURCE ASSESSMENTS
7981 Crystal Boulevard • El Dorado, CA 95623
Phone/Fax: (530) 620-3631
Email: cmcfish@innercite.com

May 15, 2000

Edna Bowcutt, Clerk
Tuolumne County Board of Supervisors
2 South Green Street
Sonora, California 95370

Dear Ms. Bowcutt,

As a requirement of the CALFED Bay-Delta Program (CALFED), I have enclosed a copy of a proposal that Carl Mesick Consultants and the Trust for Public Land are submitting to CALFED today to implement a restoration project on the Stanislaus River between Two-Mile Bar, which is near rivermile 57, to Honolulu Bar, which is near rivermile 49.5. The Two-Mile Bar site is on the boundary of Tuolumne County, but the other sites are in other counties. Carl Mesick Consultants is a small firm specializing in fishery studies and river restoration since 1992. Our staff have been working on the Stanislaus River since 1994 and implemented another river restoration project called "The Knights Ferry Gravel Replenishment Project" on the Stanislaus River for CALFED in 1999. The Trust for Public Land is a national nonprofit conservation organization with over 26 years of experience in acquiring critical land and water resources from willing sellers for habitat and ecosystem restoration and open space preservation.

Our proposal is for Phase 1 of a spawning and floodplain restoration project at five reaches in the project area. Our objectives are twofold: the first is to increase the amount of gravel in the river to improve spawning habitat for fall-run chinook salmon and steelhead/rainbow trout; and the second is to restore floodplain function to reduce the rate that gravel is transported and to provide rearing habitat for juvenile salmon and trout during high flows. We intend to achieve these objectives by removing gravel on heavily disturbed gravel bars and dredger tailings that are perched above the river, and then cleaning and placing that gravel into the river adjacent to the gravel bars to provide spawning habitat. We also propose to acquire the 50-acre Two-Mile Bar property from a willing seller to provide a source of gravel and access for restoration in a critical reach for fish. If CALFED funds the entire project, then about 27,083 cubic yards of gravel will be removed, cleaned and sorted, and placed at 24 sites in the five reaches. The gravel will be obtained from U.S. Army Corps of Engineers (ACOE) fee property and through purchases from several private landowners. As the gravel will be processed on site and placed in the adjacent riverbed, there will be minimal impacts to county roads or traffic. We are also proposing to construct two roads on ACOE fee property to provide access for restoration. If funded, we will be applying for grading permits for the work conducted on private property in addition to the other required state and federal permits. This proposal was developed with the full knowledge of the Department of Fish and Game, U.S. Fish and Wildlife Service (USFWS), and the local irrigation and water districts. The USFWS has indicated that they will fund a portion of this project.

If you have any questions, please do not hesitate to call me. Thank you.

Sincerely,

Carl Mesick

Carl Mesick, Ph.D.
Fishery Biologist

enclosure

CARL MESICK CONSULTANTS
FISHERY RESOURCE ASSESSMENTS
7981 Crystal Boulevard • El Dorado, CA 95623
Phone/Fax: (530) 620-3631
Email: cmcfish@innercite.com

May 15, 2000

Beverly Shane, Director
Tuolumne Count Community Development Department
2 South Green Street
Sonora, California 95370

Dear Ms. Shane,

As a requirement of the CALFED Bay-Delta Program (CALFED), I have enclosed a copy of a proposal that Carl Mesick Consultants and the Trust for Public Land are submitting to CALFED today to implement a restoration project on the Stanislaus River between Two-Mile Bar, which is near rivermile 57, to Honolulu Bar, which is near rivermile 49.5. The Two-Mile Bar site is on the boundary of Tuolumne County, but the other sites are in other counties. Carl Mesick Consultants is a small firm specializing in fishery studies and river restoration since 1992. Our staff have been working on the Stanislaus River since 1994 and implemented another river restoration project called "The Knights Ferry Gravel Replenishment Project" on the Stanislaus River for CALFED in 1999. The Trust for Public Land is a national nonprofit conservation organization with over 26 years of experience in acquiring critical land and water resources from willing sellers for habitat and ecosystem restoration and open space preservation.

Our proposal is for Phase 1 of a spawning and floodplain restoration project at five reaches in the project area. Our objectives are twofold: the first is to increase the amount of gravel in the river to improve spawning habitat for fall-run chinook salmon and steelhead/rainbow trout; and the second is to restore floodplain function to reduce the rate that gravel is transported and to provide rearing habitat for juvenile salmon and trout during high flows. We intend to achieve these objectives by removing gravel on heavily disturbed gravel bars and dredger tailings that are perched above the river, and then cleaning and placing that gravel into the river adjacent to the gravel bars to provide spawning habitat. We also propose to acquire the 50-acre Two-Mile Bar property from a willing seller to provide a source of gravel and access for restoration in a critical reach for fish. If CALFED funds the entire project, then about 27,083 cubic yards of gravel will be removed, cleaned and sorted, and placed at 24 sites in the five reaches. The gravel will be obtained from U.S. Army Corps of Engineers (ACOE) fee property and through purchases from several private landowners. As the gravel will be processed on site and placed in the adjacent riverbed, there will be minimal impacts to county roads or traffic. We are also proposing to construct two roads on ACOE fee property to provide access for restoration. If funded, we will be applying for grading permits for the work conducted on private property in addition to the other required state and federal permits. This proposal was developed with the full knowledge of the Department of Fish and Game, U.S. Fish and Wildlife Service (USFWS), and the local irrigation and water districts. The USFWS has indicated that they will fund a portion of this project.

If you have any questions, please do not hesitate to call me. Thank you.

Sincerely,

Carl Mesick

Carl Mesick, Ph.D.
Fishery Biologist

enclosure

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

May 5, 2000

Stanislaus River Parks
P.O. Box 1229
Oakdale, CA 95361
(209) 881-3517

Carl Mesick Consultants
7981 Crystal Boulevard
El Dorado, CA 95623
Attn: Carl Mesick

Mr. Mesick:

In response to your draft "Proposal to Restore Floodplain Spawning Habitat in the Stanislaus River, Phase 1" this office supports the activities as proposed as part of overall improvements to fisheries habitat as directed by the Stanislaus River Parks Master Plan of 1977. However, project operations may not incur cost to the federal government or otherwise burden existing SRP operations.

As part of the project support, the COE will issue you a license for access over and across any and all lands owned in Fee Title by the U.S. Army Corps of Engineers (COE), along the Stanislaus River in addition to any and all easement interests presently managed by the COE at Stanislaus River Parks (SRP). Additionally, gravel deposits located on SRP Fee Title will be available for use in this project in exchange for financially comparable services or improvements to public lands.

Thank you for your efforts to improve the Stanislaus River fisheries and we look forward to further support of this project. If you have any questions, please feel free to contact this office at (209) 881-3517.

Phillip Holcomb,
Park Manager, Stanislaus River Parks

CARL MESICK CONSULTANTS
FISHERY RESOURCE ASSESSMENTS
7981 Crystal Boulevard ▲ El Dorado, CA 95623
Phone/Fax: (530) 620-3631
Email: cmcfish@innercite.com

Access and Gravel Purchase Agreement

The purpose of this agreement is to notify the CALFED Bay Delta Program that Western Sand and Gravel (WS&G) is willing to sell a sufficient quantity of raw material to Carl Mesick Consultants or their agents from their property on the south side of Frymire Road to produce clean gravel for a fair market value for the purposes of river restoration. WS&G also agrees to provide Carl Mesick Consultants and their agents with access to their property for the purposes of processing the gravel and monitoring the restoration work. The parties to this agreement agree as follows:

1. WS&G agrees to sell sufficient raw gravel from their property, AP 002-43-31 and AP 002-43-33, to produce about 6,554 cubic yards of clean gravel, sorted to the specifications of Carl Mesick Consultants, for $5.00 per cubic yard of clean gravel minus a donation of $3.44 per cubic yard to this project. WS&G=s donation gives a net cost of $1.56 per cubic yard of clean gravel. The raw gravel will be obtained from exposed gravels in the 8,000 cfs flood easement owned by the U.S. Army Corps of Engineers. The gravel will be purchased as soon as Carl Mesick Consultants is notified that CALFED has awarded Carl Mesick Consultants funding for this project, presumably in October 2000.

2. WS&G agrees to provide access to their property to Carl Mesick Consultants and their agents during 2001 and 2002 for the purpose of processing the raw material into clean gravel and then placing it in the riverbed next to their property to help restore fish habitat. Access will be provided by the existing gravel road from Frymire Road through parcel AP 002-43-33.

3. WS&G agrees to provide access to their property to Carl Mesick Consultants and their agents from January 2001 through January 2005 for the purpose of monitoring the effects of gravel placement in the river.

4. Carl Mesick Consultants agrees to notify WS&G in advance of accessing the project site, if requested by WS&G. WS&G agrees to notify Carl Mesick Consultants of any concerns arising under this agreement by contacting Carl Mesick at (530) 620-3631.

5. Any modifications, other than gravel processing, to WS&G=s property will be restored to the condition in which the property was found before the modifications took place.

6. This agreement may be amended or terminated only by written mutual consent of all parties.

Gordon Crawford

Gordon Crawford, President
Western Sand and Gravel

5/10/00.
Date

Carl Mesick

Carl Mesick
Carl Mesick Consultants

5/10/00.
Date

CARL MESICK CONSULTANTS
FISHERY RESOURCE ASSESSMENTS
7981 Crystal Boulevard • El Dorado, CA 95623
Phone/Fax: (530) 620-3631
Email: cmcfish@innercite.com

Access and Gravel Purchase Agreement

The purpose of this agreement is to notify the CALFED Bay Delta Program that Mr. Mark Hunter is willing to sell either raw material or sorted, clean gravel to Carl Mesick Consultants or their agents from their property on the west side of Sonora Road for a fair market value for the purposes of river restoration. Mr. Hunter also agrees to provide Carl Mesick Consultants and their agents with access to his property for the purposes of monitoring the restoration work. The parties to this agreement agree as follows:

1. Mr. Hunter agrees to sell either raw or processed gravel from his property, AP 002-40-21, to produce about 950 cubic yards (1,500 tons) of clean gravel, sorted to the specifications of Carl Mesick Consultants, for a fair market value. The raw gravel will be obtained from exposed gravel tailings on Mr. Hunter's property. The gravel will be purchased in 2001 or 2002.
Processed gravel @ 5.50 Per ton + tax.

2. If Mr. Hunter sells Carl Mesick Consultants raw gravel, Mr. Hunter agrees to provide access to his property to Carl Mesick Consultants and their agents during 2001 and 2002 for the purpose of processing the raw material into clean gravel and then placing it in the riverbed next to his property to help restore fish habitat. Access will be provided by the existing gravel road from Kennedy Road through parcel AP 002-40-21.

3. Mr. Hunter agrees to provide access to his property to Carl Mesick Consultants and their agents from January 2001 through January 2005 for the purpose of monitoring the effects of gravel placement in the river.

4. Carl Mesick Consultants agrees to notify Mr. Hunter in advance of accessing the project site, if requested by Mr. Hunter. Mr. Hunter agrees to notify Carl Mesick Consultants of any concerns arising under this agreement by contacting Carl Mesick at (530) 620-3631.

5. Any modifications, other than gravel processing, to Mr. Hunter's property will be restored to the condition in which the property was found before the modifications took place.

6. This agreement may be amended or terminated only by written mutual consent of all parties.

Mark R Hunter — 5-10-00

Mark Hunter
Property Owner — Date

Carl Mesick — 5/10/00

Carl Mesick
Carl Mesick Consultants — Date

CARL MESICK CONSULTANTS
FISHERY RESOURCE ASSESSMENTS
7981 Crystal Boulevard • El Dorado, CA 95623
Phone/Fax: (530) 620-3631
Email: cmcfish@innercite.com

Access and Gravel Purchase Agreement

The purpose of this agreement is to notify the CALFED Bay Delta Program that Ms. Nancy Frymire is willing to sell a sufficient quantity of dredger tailings to Carl Mesick Consultants (CMC) or their agents from her property on the south side of Frymire Road to produce clean gravel for a fair market value for the purposes of river restoration. CMC and their agents will improve Ms. Frymire's lower pasture by grading the areas where the tailings were obtained. Ms. Frymire acknowledges that after the newly graded pasture is providing feed for her cattle, CMC and their agents are proposing to construct a gated, gravel road through her upper pasture on U.S. Army Corps of Engineers fee property. Ms. Frymire also agrees to provide CMC and their agents with access to her property for the purposes of processing the gravel and monitoring the restoration work. The parties to this agreement agree as follows:

1. Ms. Frymire agrees to sell sufficient raw material from her property to produce about 3,750 cubic yards of clean gravel, sorted to the specifications of CMC, for the fair market value of $1.56 per cubic yard of clean gravel. An advance payment of $3,000 has been given to Ms. Frymire by CMC today toward the purchase of 1,875 cubic yards of clean gravel. The remainder of the gravel will be purchased in either 2001 or 2002.

2. Ms. Frymire agrees to provide access to her property to CMC and their agents during 2001 and 2002 for the purpose of processing the dredger tailings into clean gravel and then placing it in the riverbed next to her property to help restore fish habitat. No live trees would be removed. Access will be provided by the existing gravel road from Frymire Road. The CMC and their contractor agree to grade and repair the access road. The contractor will include Ms. Frymire in their liability insurance coverage as protection from all claims and losses resulting from work conducted by the contractor. CMC will provide Ms. Frymire with 30 panels of wire stock panels.

3. CMC and their agents agree to grade the areas where dredger tailings are obtained to increase the size of the lower pasture and improve irrigation to it. CMC agrees to plant the newly graded pasture with pasture mix.

4. Ms. Frymire acknowledges that CMC and their agents are proposing to construct a gated, gravel road on U.S. Army Corps of Engineers fee property through her upper pasture. Fences, gates, and irrigation culverts will be installed on or along this road as per Ms. Frymire's specifications. CMC and their agents agree not to construct the road until the newly graded, lower pasture is capable of providing feed for her cattle.

5. Ms. Frymire agrees to provide access to her property to CMC and their agents from January 2001 through January 2005 for the purpose of monitoring the effects of gravel placement in the river and the growth of planted trees and shrubs.

6. CMC agrees to notify Ms. Frymire in advance of accessing the project site, if requested by Ms. Frymire. Ms. Frymire agrees to notify CMC of any concerns arising under this agreement by contacting Carl Mesick at (530) 620-3631.

7. Any modifications, other than gravel processing and pasture improvement, to Ms. Frymire's property will be restored to the condition in which the property was found before the modifications took place.

8. This agreement may be amended or terminated only by written mutual consent of all parties.

Nancy Jane Frymire — May-9-2000

Nancy Jane Frymire
Property Owner — Date

Carl Mesick — May 9, 2000

Carl Mesick
Carl Mesick Consultants — Date

JIM MANGANTE
PO Box 967
Oakdale, CA 95361

May 8, 2000

Sonia Jacques
The Trust for Public Land
116 New Montgomery Street
Suite 300
San Francisco, CA 94105

Re: CALFED Proposal: Floodplain and Spawning Habitat Restoration in the Stanislaus River, Phase 1

Dear Ms. Jacques,

I support your efforts on behalf of the U.S. Fish and Wildlife Service (FWS) and the U.S. Army Corps of Engineers (COE) to obtain CALFED funding for an appraisal and acquisition of my property adjacent to Two-Mile-Bar. This appraisal will provide the basis for a negotiation regarding the acquisition of the approximately 50-acre parcel, which would be conveyed to the COE. The FWS would oversee fieldwork and conceptual restoration planning for the site to provide habitat for fall-run Chinook salmon and potentially steelhead trout.

Further, I grant permission to TPL to conduct such inspections of my property at Two-Mile-Bar as necessary to complete appraisal and acquisition work. I also grant permission to access the floodplain and river for monitoring of restoration work.

I understand that any information generated through work relative to CALFED funding will become public information.

Sincerely,

Jim Mangante Jim Mangante

cc: Phil Holcomb, Stanislaus River Parks Manager, US Army Corps of Engineers
Scott Spaulding, Habitat Restoration Coordinator, US Fish and Wildlife Service
Rhonda Reed, Anadromous Habitat Restoration Coordinator, CA Department of Fish and Game

STOCKTON EAST WATER DISTRICT

6767 E. MAIN STREET P.O. BOX 5157 STOCKTON CA 95205-0157 209/948-0333 FAX 209/948-0423

May 11, 2000

CALFED Bay-Delta Programs Office
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

Re: Title of Project: Floodplain and Spawning Habitat Restoration in the Stanislaus River, Phase 1.

TO WHOM IT MAY CONCERN:

The Stockton East Water District was asked to review the funding request being submitted to CALFED by Carl Mesick Consultants, McBain and Trush, and the Trust for Public Land regarding Floodplain and spawning habit Restoration in the Stanislaus River, Phase 1.

Stockton East Water District and other water users on the Stanislaus River have been funding investigations and research over the past years, and we are pleased to see restoration work being proposed on the Stanislaus River. The District carefully reviewed the funding request, and wishes to formally notify CALFED and the project proponents of its support for the project.

Very Truly Yours,

Alfred Bonner

ALFRED B. BONNER
Board President

Cc: Cark Mesick